San Francisco Bay Area Rapid Transit District

Second Addendum to the Final Initial Study/Mitigated Negative Declaration

BART Hayward Maintenance Complex Project

January 2017

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Attachments

TABLES

FIGURES

1. Introduction and Purpose

Over the next 30 years, the San Francisco Bay Area Rapid Transit District (BART) will require additional vehicles to meet future demand associated with regional population growth and system expansions. Accordingly, BART requires expanded maintenance and storage facilities to serve this expanded fleet. In response to this requirement, BART is currently constructing the Hayward Maintenance Complex (HMC) project at the existing Hayward Yard. The HMC Project consists of acquisition and improvement to three properties containing four warehouses on the west side of the existing Hayward Yard and the construction of additional storage tracks on undeveloped BART property on the east side of the Hayward Yard. The project location is depicted on Figure 1.

BART is proposing modifications to the previously approved HMC. This environmental document describes the proposed modifications and examines whether these modifications would require additional environmental analysis beyond that provided in the HMC Initial Study/Mitigated Negative Declaration (IS/MND) adopted by the BART Board of Directors (Board) on May 26, 2011. Based on the following evaluation, no additional environmental review is required.

2. Previous Environmental Reviews for the Hayward Maintenance Complex

An IS/MND was prepared for the HMC Project pursuant to the California Environmental Quality Act (CEQA). The IS/MND examined a full range of potential environmental impacts and proposed mitigation measures where potentially significant impacts were identified. The IS/MND was adopted, and the HMC Project was approved by the BART Board of Directors (Board) on May 26, 2011. Because the project included federal funding, the Federal Transit Administration (FTA) reviewed the project pursuant to the National Environmental Policy Act (NEPA) and approved a Categorical Exclusion for the project on September 21, 2011.

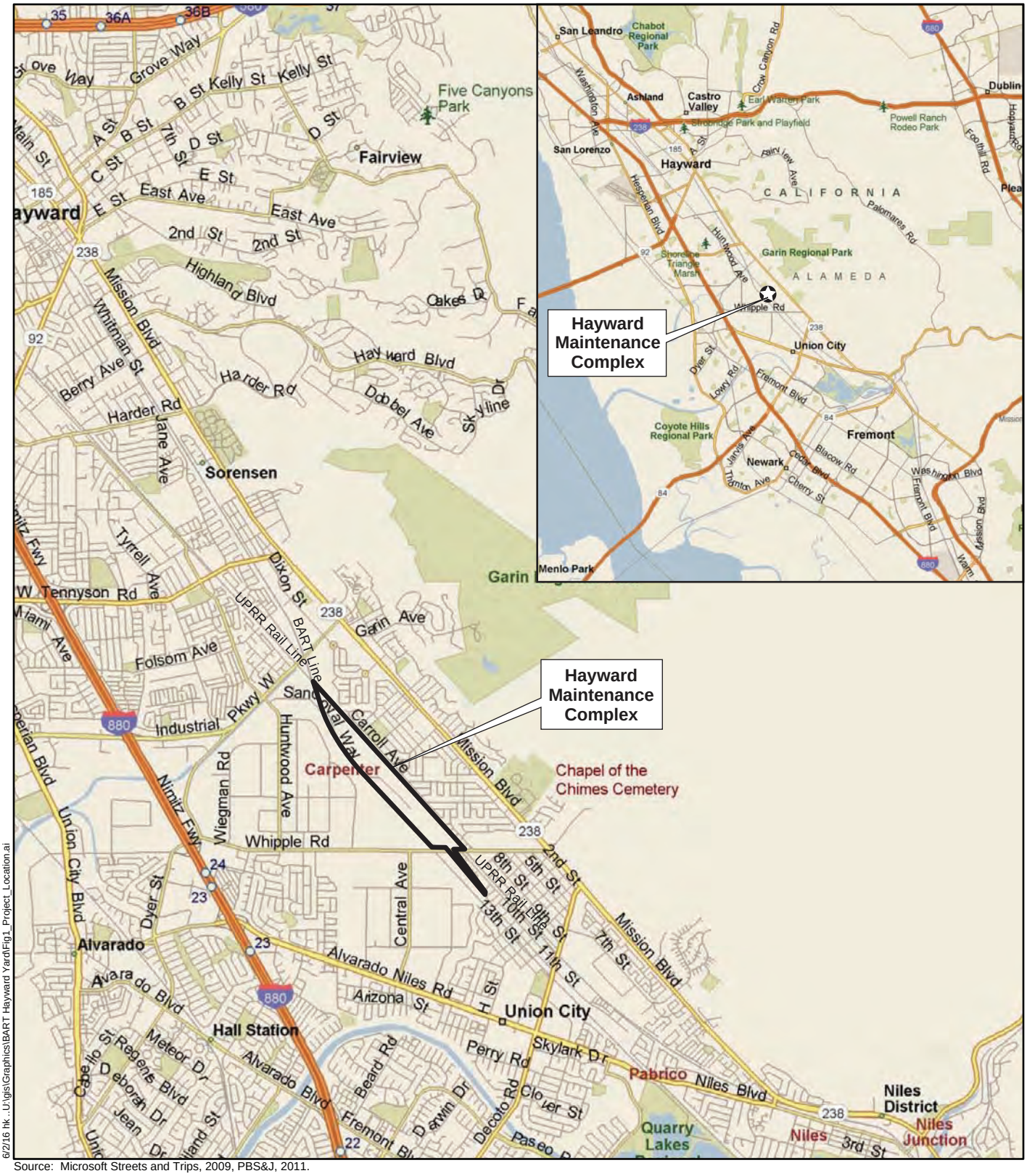
In March 2013, an Addendum to the 2011 IS/MND was prepared in response to proposed modifications to the approved project. In the original HMC plan, an existing warehouse (Building 3) would be renovated and become the Component Repair Shop. The project design was revised to demolish Building 3 and replace it with a new structure to house the Component Repair Shop.

3. Purpose of Addendum

In accordance with Section 15164 of the CEQA Guidelines, BART may prepare an Addendum to the 2011 IS/MND if some changes or additions to the previously approved HMC Project are necessary, as long as none of the conditions described in Section 15162 requiring the preparation of a subsequent Environmental Impact Report (EIR) or Negative Declaration have occurred.

In brief, Section 15162 states that when an EIR has been certified or Negative Declaration adopted, no subsequent EIR or Negative Declaration needs to be prepared for the project unless the Lead Agency determines, on the basis of substantial evidence in the light of the whole record, that there are:

- Substantial changes proposed in the project which require major revisions of the previous EIR or Negative Declaration due to new or substantially more severe effects,
- Substantial changes occur with respect to the circumstances under which the project is undertaken which require major revisions of the previous EIR or Negative Declaration due to new or substantially more severe effects, or



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Source: Microsoft Streets and Trips, 2009, PBS&J, 2011.

NORTH

SCALE IN MILES

0 mi 0.5 1 1.5 2 2.5

PROJECT LOCATION

Hayward Maintenance Complex
60270000 BART
August 2016 Hayward, California

AECOM

FIGURE 1

- There is new information of substantial importance regarding new significant effects, substantially more severe effects, or the feasibility or effectiveness of mitigation measures.

This Addendum revisits the analysis conducted in the 2011 IS/MND and 2013 Addendum and evaluates the proposed modifications to the previously approved HMC in the context of current information and circumstances in the project area. The proposed modifications are evaluated for all categories of impact. As described below, the analysis does not identify any substantial changes to the affected environment and did not identify any new or substantially more severe impacts not already identified in the previous environmental documents or changes in the feasibility or effectiveness of mitigation measures. All mitigation measures included in those documents and the Mitigation Monitoring and Reporting Plan (MMRP) will continue to apply to the proposed modifications. Based on the evaluation presented in this Addendum, there is no substantial evidence in the light of the whole record that the conditions outlined in Section 15162 of the CEQA Guidelines requiring a subsequent IS/MND or EIR are met. Therefore, an Addendum to the 2011 IS/MND is appropriate.

4. Proposed Modifications

The HMC Project consists of acquisition and improvement to three properties containing four warehouses on the west side of the existing Hayward Yard and the construction of expanded maintenance and storage facilities. Implementation of the HMC will occur over two phases.

Phase 1 includes a new Vehicle Overhaul and Heavy Repairs Shop (VOHRS), Component Repair Shop, Central Warehouse, and Maintenance and Engineering (M&E) Shop and storage area. A new motor vehicle connection will allow vehicle access between the new Phase 1 facilities and Sandoval Way, the existing yard roadway. Rail car access will be added along the east side of these buildings to connect them to the existing Hayward Yard. Maintenance operations and storage will move from the east side yard to the west side with the establishment of the proposed M&E Shop and storage area.

Phase 2 will include a new storage area on approximately 13 acres of an undeveloped 20-acre portion of the northeast quadrant of the Hayward Yard. The site is bounded by an existing Union Pacific Railroad (UPRR) rail line (Niles subdivision) on the east, the BART mainline and test track to the west, and BART's existing materials storage yard to the south. In addition to the new expansion area to the east of the existing yard, a portion of the approximately 12 acres of the existing BART storage yard (which is already paved) will be reconfigured with connecting tracks.

The proposed modifications to the HMC Project evaluated in this Addendum include the following elements:

- A self-contained paint booth would be added in the VOHRS.
- Rather than retrofitting existing on-site structures, the existing structures would be demolished and new buildings for the M&E Shop and Central Warehouse would be constructed (see below for details regarding the size and employees in the new buildings).
- A new spur track running from the already planned M&E non-revenue tracks in front of the New M&E Shop and Central Warehouse would be constructed.
- A new fuel island adjacent to the M&E non-revenue tracks with 8,000 gallons of gasoline and 8,000 gallons of diesel would be constructed.
- The "BP" bypass track, proposed for just north of Whipple Road, would be relocated northward by about 1,000 feet. The bypass would be longer than the previously planned bypass and would cross Sandoval Road at grade.

- The existing revenue vehicle turntable within the existing Hayward Yard would be relocated about 100 feet to the north to avoid interference with already planned new tracks in the area. The existing yard trackage would be modified to accommodate the new turntable location.
- All new buildings would include provisions for future rooftop solar panels.
- A canopy structure between the Component Repair Shop and the Central Warehouse would be constructed.
- Proposed Soundwall SW-3 would be relocated from ground level to atop an existing concrete structure that slopes up towards the north (identified as an abandoned flyover in the project drawings).
- Protective fencing would be installed between the mainline track and the Hayward Test Track.
- The proposed station platform along the main line for sole use by HMC workers commuting by BART has been eliminated.

The locations of these modifications within the HMC are depicted on Figures 2, 3, and 4. These changes modify elements of the Phase 1 project, except for Soundwall SW-3 which is necessary to mitigate operational noise generated as a result of the Phase 2 improvements.

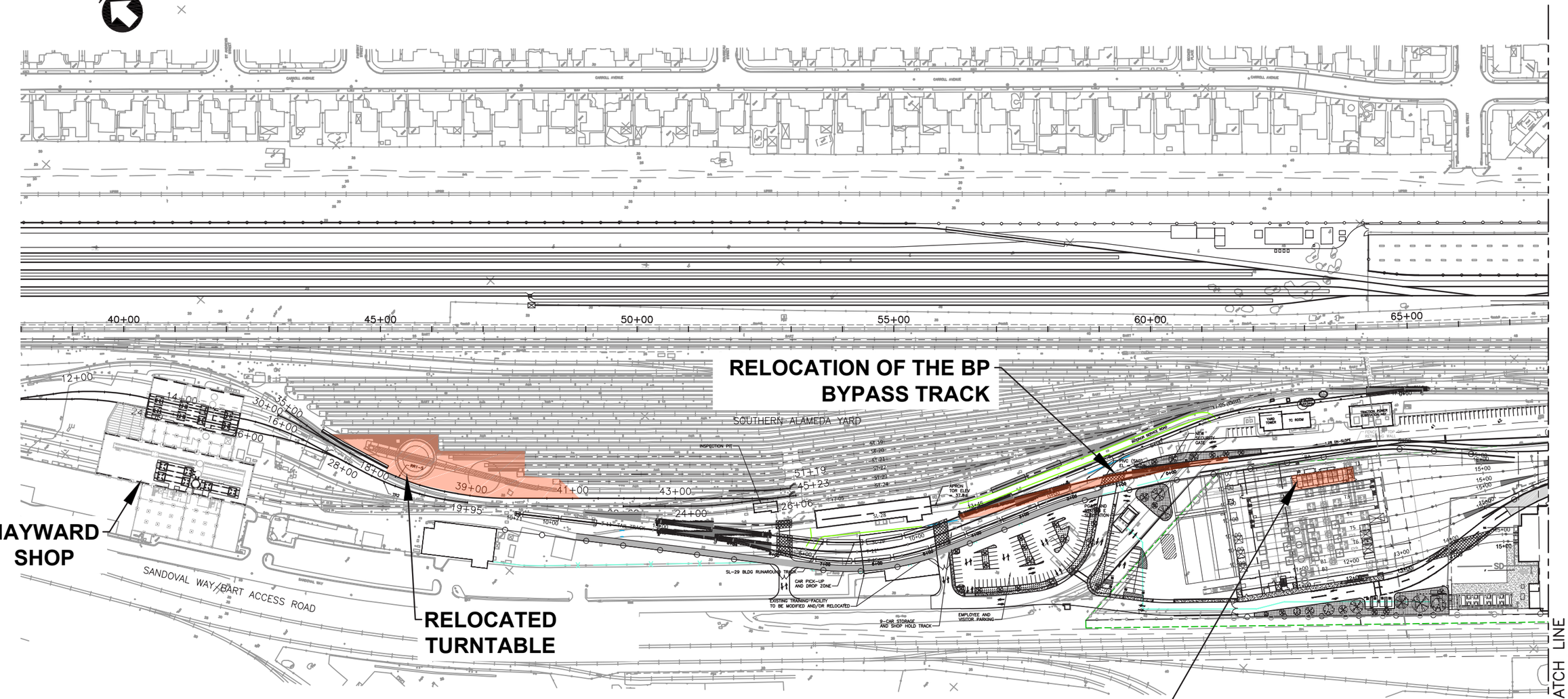
As described above, the proposed modifications include the construction of new buildings for the M&E Shop and Central Warehouse rather than retrofitting the two existing 120,000-square-foot warehouses. The new M&E Shop would be 195,000 square feet with a height of 46 feet, and the new Central Warehouse would be 126,000 square feet with a height of 35 feet. The increases in square footage are due to more realistic space allocations necessary to accommodate the various functional requirements of the facilities beyond that previously assumed in 2011.

Further analysis of the functional requirements of the facilities has also resulted in an increase in the number of employees at the HMC with the proposed modifications. The changes in the number of employees assumed for the various components of the HMC are summarized in Table 1.

Table 1: Hayward Maintenance Complex Employees with Proposed Modifications

	Total Employees (2011 IS/MND)	**Total Employees (2016 Addendum)**
New Overhaul Shop	50	50
Component Repair Shop	150	150
Central Warehouse	30	43
M&E Shop	100	402
East side storage tracks	20	20
Subtotal	**350**	**665**
Employees Relocated from Existing Yard	-135	-135
Total New Employees	**215**	**530**

Source: BART 2016, AECOM 2016



NOTE:

1. POTENTIAL SOLAR PANEL ROOF ON THE VEHICLE OVERHAUL AND HEAVY REPAIRS SHOP, COMPONENT REPAIR SHOP, CENTRAL WAREHOUSE, AND MAINTENANCE AND ENGINEERING SHOP.

100' 0' 100' 200'

GRAPHIC SCALE

FOR REVIEW ONLY
NOT FOR CONSTRUCTION

PROPOSED MODIFICATIONS 1 OF 3

Hayward Maintenance Complex
60270000 BART
January 2017 Hayward, California

AECOM

FIGURE 2

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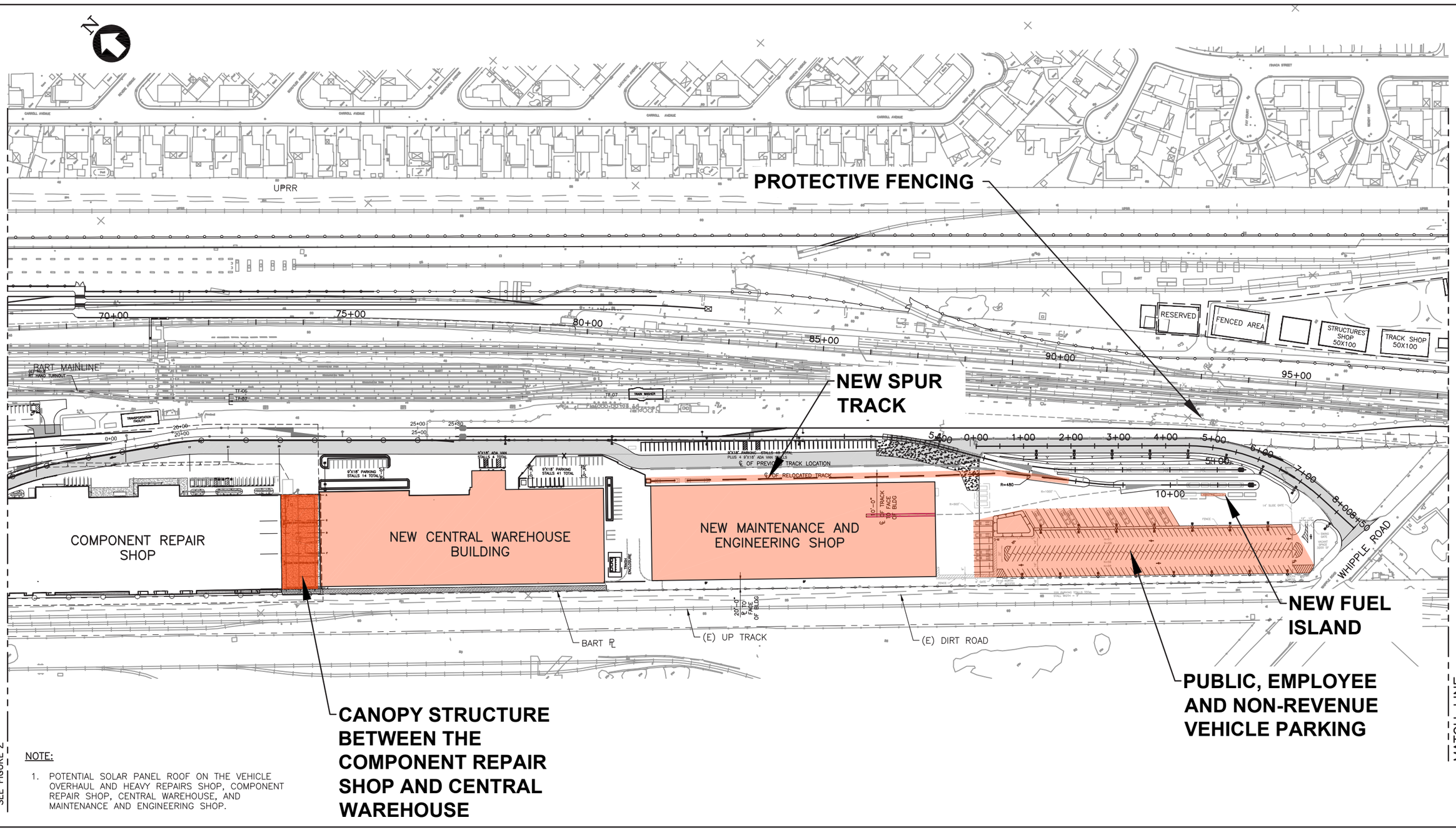

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100' 0' 100' 200'

GRAPHIC SCALE

FOR REVIEW ONLY
NOT FOR CONSTRUCTION

PROPOSED MODIFICATIONS 2 OF 3

Hayward Maintenance Complex
BART
Hayward, California

60270000
January 2017

AECOM

FIGURE 3

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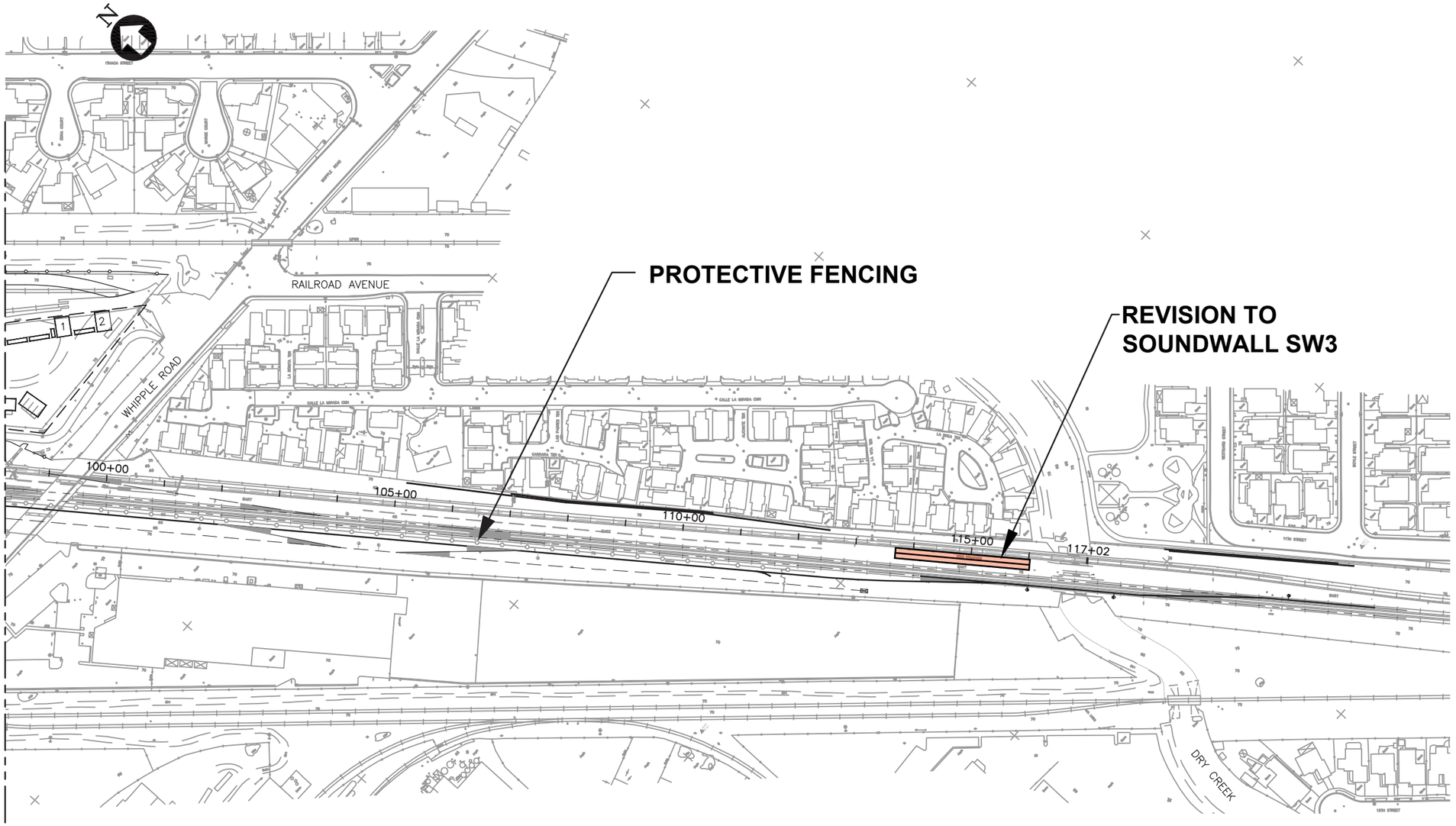

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100' 0' 100' 200'

GRAPHIC SCALE

FOR REVIEW ONLY
NOT FOR CONSTRUCTION

PROPOSED MODIFICATIONS 3 OF 3

Hayward Maintenance Complex
60270000 BART
January 2017 Hayward, California

AECOM

FIGURE 4

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5. Environmental Analysis

The following analysis provides a review of the topics in the previous environmental documents to examine if any of the conditions requiring subsequent environmental review (as defined in Section 15162 of the CEQA Guidelines) would be triggered by the proposed modifications to the HMC Project. Based on this analysis, no subsequent environmental review is necessary.

5.1. Aesthetics

The 2011 IS/MND determined that the HMC Project would have no impact on scenic vistas or scenic resources because no scenic vistas or scenic resources are present in the project area. The 2011 IS/MND also determined that the HMC Project would have a less-than-significant impact related to creation of substantial light or glare. However, the 2011 IS/MND determined that the HMC Project could degrade the existing visual character of the project area due to the removal of existing trees required by the construction of the proposed crossover switches south of Whipple Road. Implementation of Mitigation Measure VQ-1 would reduce these potential impacts to a less-than-significant level.

As described in the Aesthetics section of the 2011 IS/MND, the west side of the HMC Project is surrounded by industrial uses. The BART mainline tracks are to the east, the Union Pacific Railroad (Oakland subdivision) is to the west, and there are other industrial buildings to the south. The only visually sensitive receptors in the project area are residential neighborhoods northeast of the project beyond the mainline tracks. The proposed modifications would include components that are consistent in terms of massing, scale, lighting, and level of activity with the existing industrial use of the maintenance yard and therefore would not create new visual impacts to the neighborhoods. Overall, there are no scenic views of the project site from vantage points open to the public.

All of the proposed modifications would be constructed within the boundary of the original project footprint that was evaluated in the 2011 IS/MND. While slightly taller (46 feet tall proposed for the M&E Shop and 35 feet tall proposed for the Central Warehouse versus the existing 28 feet tall building), the proposed new buildings for the M&E Shop and the Central Warehouse would occupy the same footprint and be of similar scale and massing as the existing buildings to be demolished. Therefore, these new buildings would not introduce new visual elements in the project area that could adversely affect views or the visual quality of the project site or the larger project area.

The potential future installation of rooftop solar (photovoltaic) panels would not result in new visual impacts given the industrial nature of the project site. Solar panels are generally non-reflective passive elements that do not generate any light or glare. The panels absorb light by design and generally produce less glare than standard window glass. In addition silicon-based panels are coated with anti-reflective materials and are constructed with a rough surface to diffuse reflection and minimize glare. The panels would be installed on the roofs of the buildings at a low angle. Therefore, they would not result in a substantial perceived increase in the heights of the buildings and no new adverse visual effects would result.

A canopy would be constructed between the Component Repair Shop and the new Central Warehouse. This canopy would introduce a new visual element between the buildings; however, it would be located centrally within the maintenance yard and not visible to the visually sensitive receptors to the northeast. The relocated turntable, paint booth, fuel island, and spur track would also be located centrally within the maintenance yard. Visually sensitive receptors are to the northeast and separated from this site by much of the yard, storage, and tracks. Because of the limited visibility, views and the visual quality and character of the HMC would not be altered, and these particular proposed modifications would have a less-than-significant visual impact.

The proposed revisions to soundwall SW-3 and the BP bypass track would not result in a substantial change in the location and extent of these project elements from those that were evaluated in the 2011 IS/MND and subsequently approved. The relocation of Soundwall SW-3 from ground level (to a height of 9 feet above the top of rail) to an existing concrete structure would make this project component more visible; however, the sound wall would be viewed as a short vertical extension of the existing structure (at most 4 feet at its southern end), would not alter the visual character of the Hayward Yard, and would not obstruct scenic views from the residences or public vantage points as described in the 2011 IS/MND. The protective fencing to be installed south of Whipple Road would not substantially alter the visual setting and is not incongruous visually with an industrial site. Therefore, this particular revision would not introduce a substantial new visual element to the project site and would not alter the analysis in the 2011 IS/MND.

Given the site's lack of visual access and the location, scale, and height of the proposed modifications, there would be no change to the previous CEQA determination that there would be less-than-significant visual impacts.

5.2. Agriculture and Forestry Resources

The 2011 IS/MND determined that the HMC Project would not be located on or in the vicinity of farmland, agriculturally active land, or forestry land, and no impact to these resources would result. The proposed modifications to the project do not include changes to the project location or substantial changes to the footprint of proposed project features. Therefore, the proposed modifications to the approved project would not result in impacts to agriculture and forestry resources and would not alter the no impact CEQA determinations from the 2011 IS/MND.

5.3. Air Quality

The 2011 IS/MND determined that project operational air emissions would be less than significant. The proposed changes to the approved project would increase daily vehicle traffic and would include two improvements that could result in additional VOC emissions: a paint booth and a fuel island with gasoline/ diesel fuel dispensing. As shown in Table 2, project mobile, energy, and area source emissions under the proposed changes were estimated and would be well below BAAQMD significance thresholds (see Attachment A for emission calculation details).

The paint booth and fuel island stationary sources of air emissions would be subject to the Bay Area Air Quality Management District (BAAQMD) rules and regulations and permitting requirements. BAAQMD is responsible for issuing permits for the construction and operation of stationary sources in order to reduce air pollution, protect public health, and to attain and maintain the national and California ambient air quality standards in the San Francisco Bay Area Air Basin (SFBAAB). Newly modified or constructed stationary sources, such as the proposed paint booth and fuel island, would be subject to BAAQMD permitting requirements. If emissions exceed Best Available Control Technology (BACT) trigger levels, BACT evaluations for the source must be performed to determine if emissions control equipment or administrative requirements must be implemented to attain the lowest achievable emission rate.

Because the net increase in the project's long-term operational mobile, energy, and area source air emissions would be substantially below significance thresholds, and stationary sources must comply with the BAAQMD permitting requirements, the proposed project would not be anticipated to increase operational emissions to significant levels or conflict with applicable air quality plans.

Table 2: Project Operational Emissions[1]

Emissions Category	ROG	NOx	PM_{10}	$PM_{2.5}$
Area (tons/year)	0.56	< 0.01	< 0.01	< 0.01
Energy (tons/year)	0.02	0.16	0.01	0.01
Mobile (tons/year)	0.33	1.09	0.53	0.15
Total Annual Emissions (tons/year)	**0.91**	**1.24**	**0.54**	**0.16**
Annual Emissions Significance Threshold (tons/year)	10	10	15	10
Average Daily Emissions (lbs/day)	**4.97**	**6.82**	**2.98**	**0.90**
Average Daily Emissions Significance Threshold (lbs/day)	54	54	82	54

Notes:

[1] Operational emissions in this table include area, energy, and mobile sources from the proposed HMC proposed modifications. Stationary source emissions data, however, is not available and are not included. Based on the scale and operations of the paint booth and fuel island, and the permitting requirements of the BAAQMD, the overall modifications would not be expected to exceed the average daily emissions significance thresholds.

ROG = reactive organic gases
NOx = oxides of nitrogen
PM_{10} = particulate matter with aerodynamic diameter 10 microns or less
$PM_{2.5}$ = particulate matter with aerodynamic diameter 2.5 microns or less

Totals may not add up due to rounding.
Average daily emissions are derived from the annual emissions by converting to lbs and dividing by 365 days/year.

Source: AECOM, 2016

The 2011 IS/MND determined that project construction emissions would be less than significant with mitigation measures AQ-1 and AQ-2 incorporated. These measures include phasing construction to reduce air emissions and implementation of BAAQMD dust control measures. The proposed modifications would involve relocation of some project features, addition of a new spur track, and construction of new buildings for the M&E Shop and Central Warehouse, which are construction activities that were not addressed in the 2011 IS/MND (the existing buildings were previously proposed to be renovated and repurposed). Construction emissions from the modified project were modeled and were below the BAAQMD significance thresholds, as shown in Table 3 (see Attachment A for emission calculation details). Mitigation measures AQ-1 and AQ-2 will also apply to the construction activities for the proposed changes. Therefore, these changes would not result in additional significant construction-related air emission impacts.

Table 3: Project Construction Air Emissions

Emissions	ROG	NOx	PM_{10}	$PM_{2.5}$
Total Construction Emissions (tons)	8.41	22.85	1.09	1.01
Average Daily Emissions (lbs/day)	**14.99**	**40.74**	**1.94**	**1.81**
Average Daily Emissions Significance Threshold (lbs/day)	54	54	82	54

Notes:

ROG = reactive organic gases
NOx = oxides of nitrogen
PM_{10} = particulate matter with aerodynamic diameter 10 microns or less
$PM_{2.5}$ = particulate matter with aerodynamic diameter 2.5 microns or less

Average daily emissions are derived from the total emissions by converting to lbs and averaging over an assumed total construction period of 51 months at 22 working days/month.

Source: AECOM, 2016

5.4. Biological Resources

The 2011 IS/MND determined that the HMC Project would result in less-than-significant impacts to biological resources with the implementation of mitigation measures BIO-1, BIO-2, BIO-3, and BIO-4.

The proposed modifications would be located within the original project footprint, and all potential impacts on biological resources within the footprint were assessed in the 2011 IS/MND. The proposed modifications would not create new or more severe biological impacts not already identified in the 2011 IS/MND. Mitigation measures BIO-1 through BIO-4 would also apply to the proposed modifications and reduce potential impacts to less-than-significant levels.

There are, however, two proposed modifications that would be proximate to biological features that were evaluated in greater detail for potential impacts: relocation of the BP bypass track and relocation of Soundwall SW-3.

The relocation of the BP bypass track would not result in impacts on an open ditch on site. The 2011 IS/MND identified the ditch as potentially a water of the State. However, the project site was resurveyed by GANDA biologists in June 2016. The section of the ditch that would be impacted by construction lacks riparian or wetland vegetation, special-status species habitat, and an ordinary high water mark, and it does not flow into other waters of the United States or waters of the state. Thus, the open ditch is not expected to be under federal or state jurisdiction. Other sections of the ditch that would be potentially jurisdictional would not be impacted by the project. Furthermore, the 2011 IS/MND stated that the ditch would be impacted by construction activities as a part of the original project description, so that these potential impacts have already been assessed. Because the ditch is not expected to be under federal or state jurisdiction, and because the ditch was already assessed in the 2011 IS/MND, the relocation of the BP bypass track would not result in new impacts on waters of the United States or waters of the state. Therefore, the proposed relocation of the BP bypass track would not create new or more severe biological impacts not already identified and mitigated for in the 2011 IS/MND.

Existing trees could also be affected by the relocation of the BP bypass track, but these impacts were also already assessed in the 2011 IS/MND. Impacts as a result of tree removal would be reduced to a less-than-significant level through implementation of mitigation measure BIO-4, which requires an arborist to identify trees to be removed, replacement of any “protected trees,” and monitoring of any planted trees. Therefore, the proposed relocation of the BP bypass track would not create new or more severe biological impacts not already identified and mitigated for in the 2011 IS/MND.

Impacts on trees can also result in impacts on nesting habitat for avian species. These impacts were assessed in the 2011 IS/MND, and implementation of mitigation measures BIO-2 and BIO-3 would reduce these impacts to a less-than-significant level by requiring tree removal outside of the nesting bird season, if feasible, and requiring nesting bird surveys if tree removal occurs during the nesting bird season.

Because of the more detailed investigations of the open ditch and the previously approved mitigation measures, the proposed relocation of the BP bypass track would not create new or more severe biological impacts not already identified and mitigated for in the 2011 IS/MND.

The location of Soundwall SW-3 is proposed to be modified, and it would now be adjacent to Dry Creek, which is under the jurisdiction of the United States Army Corps of Engineers, California Department of Fish and Game, and the Regional Water Quality Control Board. However, the wall would not cross over the creek, and its southern end would be about 45 feet from the top of bank. No activities would take place within the stream’s bed or bank. In addition, appropriate Best Management Practices would be implemented during construction to maintain compliance with the State Water Resources Control Board’s

Construction General Permit to prevent any potential for runoff to Dry Creek. Thus, modifications to Soundwall SW-3 would not create new or more severe biological impacts not already identified in the 2011 IS/MND.

In summary, based on the above discussion and implementation of mitigation measures BIO-1 through BIO-4, the proposed modifications would not change the less-than-significant-with-mitigation CEQA determination related to biological resources from the 2011 IS/MND.

5.5. Cultural Resources

The 2011 IS/MND determined that the HMC Project would have less-than-significant impacts on cultural resources. According to the *Cultural Resources Survey Report for the Hayward Yard – East Expansion Project* (PBS&J, 2009) prepared for the 2011 IS/MND, the literature and records search did not identify any previously recorded cultural resources within the HMC Project's Area of Potential Effects (APE) or within a 1/4-mile radius of the APE. The pedestrian survey likewise did not identify any cultural resources or historic-age buildings or structures within the APE.

The proposed modifications to the approved HMC Project are located within the APE that was delineated and evaluated for historical resources. Because there no significant historical resources known to occur within the project's APE, no impacts would occur to cultural resources as a result of the proposed modifications.

To protect against inadvertent impacts to previously unknown cultural resources during implementation of the HMC Project, mitigation measures were adopted that address discovery of previously unknown cultural resources during construction activities: mitigation measures CR-1 and CR-2. These measures would be applicable to the proposed modifications, and would reduce potential impacts to resources identified during construction to less than significant. Therefore, the proposed modifications would not change the CEQA determination from the less-than-significant level with mitigation measures reported in the 2011 IS/MND.

5.6. Geology and Soils

The 2011 IS/MND determined that there would be no impacts related to rupture of a known fault or landslides, because the HMC Project site is not located within an Alquist-Priolo Fault Zone or a landslide hazard zone. The proposed modifications would be constructed within the same project site evaluated in the 2011 IS/MND; therefore, the proposed modifications would create no additional impacts related to fault rupture or landslides.

The HMC Project was determined to have less-than-significant impacts related to strong-seismic groundshaking and seismic-related ground failure, because structures would be constructed in compliance with BART Facilities Standards Structural Criteria for Seismic Design. The BART Facilities Standards require all BART buildings to be able to withstand the effects of strong seismic groundshaking, seismic-induced liquefaction, and lateral spreading. In addition, the proposed modifications would be designed in accordance with the site-specific geotechnical study prepared for the approved HMC Project to identify site-specific liquefaction and lateral spreading hazard mitigation. Therefore, impacts related to groundshaking and ground failure would continue to be less than significant under the proposed modifications.

The 2011 IS/MND determined that because project construction would comply with BART Facilities Standards Standard Specifications, there would be less-than-significant impacts associated with erosion, loss of topsoil, or construction on unstable soils. Construction of the proposed modifications would also comply with BART Facilities Standards Standard Specifications adopted to avoid and minimize hazards

associated with geologic conditions. Therefore, the proposed modifications would also result in less-than-significant impacts on soils.

Similar to the HMC Project, the proposed modifications would not involve the use of septic systems. Therefore, similar to the previous CEQA determination, there would be no impact associated with septic systems.

5.7. Greenhouse Gas Emissions (GHG)

The 2011 IS/MND determined that project operational GHG emissions would be less than significant. The proposed modifications would increase operational GHG emissions because of the addition of a new M&E Shop and Central Warehouse (rather than the renovation and repurposing of the existing buildings). Project operational GHG emissions from the net increase in developed floor area and vehicle trips were calculated, and were below the BAAQMD project significance threshold of 1,100 MT CO_2e (metric tons of carbon dioxide equivalent) per year, as shown in Table 4 (see Attachment A for emission calculation details). Therefore, the changes would not result in new significant GHG impacts. The addition of the paint booth and fuel dispensing facility under the proposed modifications would be subject to a separate permitted stationary source GHG threshold of 10,000 MT CO_2e per year. The paint booth and fuel dispensing sources are not substantial contributors to GHG emissions; rather they are largely potential emission sources of VOC and TAC, and would therefore be anticipated to result in GHG emissions below the stationary source GHG emissions thresholds and have a less-than-significant GHG impact. The modifications also include provisions for future solar panels on new buildings, which would result in a net decrease in GHG emissions from the proposed changes.

Table 4: Project Operational GHG Emissions[1]

Emissions Category	Annual GHG Emissions ($MTCO_2e$/year)
Area	< 0.01
Energy	375.75
Mobile	614.15
Waste	70.87
Water	8.08
Total Annual Emissions	**1,068.85**
Annual Emissions Significance Threshold	1,100

Notes:

[1] Operational emissions in this table include area, energy, mobile, waste, and water sources from the proposed HMC proposed modifications. Stationary source GHG emissions are subject to a separate significance threshold, however, and are not included.

MT = metric tons
CO_2e = carbon dioxide equivalent

Totals may not add up due to rounding.

Source: AECOM, 2016

The 2011 IS/MND determined that project construction-related GHG emissions would be less than significant after implementation of GHG best management practices (BMPs) (mitigation measure GHG-1). Construction of the proposed modifications would also implement these BMPs. Therefore, the conclusions of the 2011 IS/MND would not change, and the modified proposed project would have a less-than-significant GHG impact with implementation of the previously adopted mitigation.

5.8. Hazards and Hazardous Materials

The 2011 IS/MND determined that there would be less-than-significant impacts associated with hazards and hazardous materials with implementation of mitigation measures HAZ-1, HAZ-2, HAZ-3, and HAZ-4.

Current operations at the maintenance yard include use of chemicals including fuel, solvents, lubricants, and paint products. With implementation of the existing Spill Prevention and Emergency Response Plan and Health and Safety Plan, as identified in the 2011 IS/MND, hazards to the public or the environment due to accidental spills and releases associated with the approved HMC Project and the proposed modifications would minimize potential hazards to less than significant. The additional underground storage tanks to be installed on site will be permitted in compliance with the Regional Water Quality Control Board (RWQCB) underground storage tank (UST) requirements. Compliance with these requirements, including requirements for tank installation, construction, testing, leak detection, spill containment, and overfill protection, would avoid potential impacts associated with the installation of these tanks.

In accordance with mitigation measure HAZ-1 in the 2011 IS/MND, a Phase I Environmental Site Assessment (ESA) was prepared for the three properties acquired for the HMC Project (Alameda County Assessor's Parcel Numbers 475-50-16, 475-50-17-4, and 475-50-17-5). These properties consist of four warehouse buildings at 1001 to 1085 Whipple Road and a vacant, undeveloped parcel. The ESA identified potential hazards associated with the project site. The three properties are listed on various environmental databases for soil and ground water contamination: Cortese, Leaking Underground Storage Tanks (LUST) and Spills, Leaks, Investigations and Cleanups (SLIC). The contamination is related to a former metal fabricating facility on the site that operated from the 1970s until 1985 and a metal fastener fabricating plant that operated from 1985 to 1992. According to the LUST listing, in 2003, the site received case closure for a gasoline release. After the metal and metal fastener fabricating facilities vacated the site, four underground storage tanks and a septic tank were removed, and contaminated soil removal and groundwater treatment were conducted under the supervision of the RWQCB. Subsurface investigations related to the former metal fabricating and metal fastener facilities were conducted at the subject property from the mid-1980s until closure was granted by the RWQCB in 2007.There are also several contaminated properties nearby, including a U.S. Pipe facility to the west-southwest of the warehouses listed in the SLIC and other databases indicating environmental impairment.

Based on the results of the Phase 1 ESA and in accordance with mitigation measure HAZ-2 from the 2011 IS/MND, a Phase II ESA was conducted in 2012 for the construction of the Component Repair Shop.[1] The results of that investigation did not indicate the presence of significant releases of hazardous substances at the site, although low levels of volatile organic compounds are present in soil vapor, including detections of ethylbenzene above regulatory screening levels that may be attributed to off-site sources or former on-site activities. Detections above screening levels of arsenic in soil and vanadium in groundwater appear to be related to natural background concentrations. Implementation of mitigation measure HAZ-3 from the adopted 2011 IS/MND, which requires remediation of contaminated sites pursuant to applicable state and federal laws and regulations, will reduce potential impacts in the vicinity of the Component Repair Shop (including the proposed modifications) to a less-than-significant level.

The 2011 IS/MND also included mitigation measure HAZ-4 to be implemented if previously unrecorded hazardous wastes were discovered prior to and during project construction, as well as measures directed towards the safe handling of any hazardous materials that might be used during construction. This mitigation measure, as well as compliance with the hazardous materials state and local regulations

1 Environmental Resources Management, Final Phase II Environmental Site Investigation, 1001-1085 Whipple Road, December 2012.

described in the 2011 IS/MND, will also be required for the proposed modifications. With implementation of these measures, the proposed modifications would not result in a change in the previous CEQA determination of less-than-significant hazardous materials impact with implementation of mitigation measures.

5.9. Hydrology and Water Quality

The 2011 IS/MND determined that impacts to hydrology and water quality would be mitigated to a less-than-significant level due to compliance with applicable water quality standards, the implementation of BMPs, and mitigation measure HYD-1.

The proposed modifications would be constructed within areas of the HMC that are currently developed and are covered with impervious surfaces. The drainage patterns and impacts to water quality resulting from the proposed modifications would therefore not result in new significant impacts. In addition, the proposed modifications would be subject to the applicable water quality standards, BMPs, and mitigation measure HYD-1 described in the 2011 IS/MND. Therefore, the CEQA determination in the 2011 IS/MND would not be altered as a result of the proposed modifications, and the proposed project would have a less-than-significant impact with respect to hydrology and water quality.

5.10. Land Use and Planning

The 2011 IS/MND determined that the HMC Project would have no impacts related to physical division of a community, conflicts with applicable land use plans, or conflicts with applicable habitat conservation plans. The 2011 IS/MND also determined the HMC Project would result in less-than-significant impact related to conflicts with existing on- or off-site land uses based on the industrial nature of the proposed project.

The proposed modifications would not introduce new non-industrial land uses to the project or surrounding areas. The project would continue to be in an area surrounded by industrial, open space, and commercial land uses to the north, west, and south; and separated from the residences located to the northeast by BART tracks. Therefore, the impacts of the proposed modifications would continue to be less than significant as presented in the 2011 IS/MND, and there would be no additional impacts related to land use and planning.

5.11. Mineral Resources

The 2011 IS/MND determined that the HMC Project would have no impacts to mineral resources. The project site is in an area classified as MRZ-1, defined as an “area where adequate information indicated that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence.”[2]

The proposed modifications would be within the boundary of the original project footprint and, therefore, would continue to be classified as MRZ-1 and more than 1 mile away from the nearest “sector” of regional mineral significance, the La Vista Quarry. As a result, the proposed modifications would not contribute additional impacts to known mineral resources or mineral resource recovery sites and there would be no change to the CEQA determination of no impact in the 2011 IS/MND.

[2] California Department of Conservation, Division of Mines and Geology, *Mineral Land Classification Map*, Newark Quadrangle.

5.12. Noise and Vibration

The 2011 IS/MND determined that the HMC Project would result in less-than-significant impacts related to noise and vibration with implementation of mitigation measures NO-1, NO-2, NO-3, NO-4, and NO-5. As discussed below, the proposed modifications would not result in a change in this CEQA determination.

5.12.1. Construction Noise and Vibration

Construction activities for the proposed modifications would temporarily increase noise levels near the HMC that could expose sensitive receptors to elevated noise levels. Such noise increases would result from both on-site construction activities and construction-related vehicle traffic (off-site). As described in the 2011 IS/MND, construction would result in additional 360 daily vehicle trips on the local roadway network as workers commute and equipment and materials are transported.

Typically, when traffic volumes double on a roadway segment compared to existing conditions, the resultant noise increase is approximately 3 dB. The proposed modifications are estimated to result in an additional 40 construction vehicles per hour. The peak-hour volumes on roadway segments in the project vicinity are well above 40 trips under existing no project conditions. Therefore, construction-related increases in traffic noise levels along the roadways in the project vicinity would not exceed 3 dB under the proposed modifications.

The proposed modifications would also involve operation of demolition and construction equipment that may include but would not be limited to graders, backhoes, skip loaders, water trucks, drilling, concrete saw, and other equipment used for grading, excavation, hauling and other activities; these same pieces of equipment were evaluated in the 2011 IS/MND. Noise levels associated with construction activities are based on the quantity, type, and usage factors for each type of equipment. Although noise ranges are generally similar for all construction phases, the highest noise levels typically occur during excavation, grading, and pile driving activities, with lower noise levels during building construction and paving. The noisiest equipment types at construction sites typically range from 88 dB to 90 dB L_{max} at 50 feet (FTA 2006). Average noise levels at construction sites typically range from approximately 65 to 89 dB L_{eq} at 50 feet, depending on the activities performed (FTA 2006).

As described in the 2011 IS/MND, the closest sensitive receptors are located approximately 100 feet from the nearest proposed Phase 1 construction activities south of Whipple Road. However, none of the proposed modifications is proposed on sites or locations closer to the sensitive receptors than were evaluated in the 2011 IS/MND. As a result, the proposed modifications would contribute to construction noise levels comparable to those reported in the 2011 IS/MND, which were estimated to result in less-than-significant noise impacts. Mitigation measure NO-3, which calls for inclusion of construction noise BMPs, would also apply to the proposed modifications. With implementation of this mitigation measure, construction-equipment noise impacts would continue to be less than significant, and construction of the proposed modifications would not change the CEQA determination in the 2011 IS/MND.

As described in the 2011 IS/MND, construction–related vibration would result from the use of heavy earth-moving equipment for area clearing, excavation, and grading. These activities would produce a vibration level of approximately 87 VdB (0.089 in/sec PPV) at a distance of 25 feet (which is the reference vibration level for operation of a large bulldozer [FTA 2006; Caltrans 2004]). Assuming a standard reduction of 9 VdB per doubling of distance (FTA 2006), the estimated maximum vibration levels generated by the project-related construction equipment would be 69 VdB (0.011 in/sec PPV) at the nearest off-site sensitive uses to the project site (100 feet). The construction-related vibration levels at these receptors would be well below the 80 VdB significance threshold for human annoyance (FTA 2006),

and also below the significance threshold of 0.2 in/sec PPV (FTA 2006) for building structures. In addition, mitigation measure NO-5 in the 2011 IS/MND, which calls for the implementation of construction BMPs, will apply to the proposed modifications. With implementation of this mitigation measure, construction vibration impacts would continue to be less than significant and the proposed modifications would not change the CEQA determination in the 2011 IS/MND.

5.12.2. Operational Noise and Vibration

Rail and roadway noise and vibration impacts associated with the HMC Project were evaluated in the 2011 IS/MND. The proposed modifications would not involve major changes in number of trains per day and night or in roadway traffic volume, or in types and usage of operational equipment within the HMC.

The existing ambient noise condition is assumed to be same as that reported in the 2011 IS/MND, since no new noise sources or changes to existing noise are known to have been introduced into the project area. As noted above, the proposed modifications involve minor track improvements, relocations of already approved components of the HMC Project, or new facilities that generate either no or little exterior noise. In addition, mitigation measures NO-1 and NO-2 in the 2011 IS/MND, which will reduce operational noise impacts of the approved HMC Project, will apply to the proposed modifications. Therefore, the exterior noise levels at the closest noise-sensitive residential uses, about 100 feet from the project site, would not be expected to increase due to the proposed modifications(because the proposed soundwalls that will be constructed in accordance with mitigation measure NO-1 will attenuate the associated noise), and would not alter the CEQA determination in the 2011 IS/MND.

The vibration analysis in the 2011 IS/MND evaluated the impacts of train operations near the sensitive areas. The proposed modifications do not include major rail track changes near sensitive receptors, but a spur track and a BP bypass track on which train movements would occur at low speeds. The vibration levels based on these reduced speeds would be below the FTA criterion for annoyance. These less-than-significant vibration impacts would be further reduced with implementation of mitigation measure NO-4, which requires vibration reducing technology, in the 2011 IS/MND, which would apply to the proposed modifications. Therefore, vibration impacts associated with the proposed modifications would continue to be less than significant, and the proposed modifications would not change the CEQA determination in the 2011 IS/MND.

5.13. Population and Housing

The 2011 IS/MND determined that the HMC Project would have no impacts to population and housing, because it would not include construction of new residential units, induce a substantial number of new employees for operation, nor displace any housing or people.

Under the proposed modifications, the projected number of new employees to the site would increase from 215 under the approved HMC Project to 530; or 315 more employees than what was assumed in the 2011 IS/MND. This projected increase in employment would not create a substantial demand for housing in the project vicinity, and would continue to be able to be accommodated by existing housing supply in the project vicinity or within the region. Therefore, the proposed modifications would not induce substantial population growth beyond that identified for the HMC Project. Because the proposed modifications would occur within the boundary of the original project footprint, they would also not result in the removal of existing housing or displace housing units or people. Therefore, the proposed modifications would not result in a substantial new impact not previously evaluated in the 2011 IS/MND.

5.14. Public Services

The 2011 IS/MND determined that the HMC Project would result in less-than-significant impacts to fire and police protection. In addition, 2011 IS/MND determined that the HMC Project would have no impact to schools, parks, and other public facilities, because it would not introduce new uses that generate a demand for these public services.

Similarly, the proposed modifications would not result in an increase the number of residences, businesses, or other facilities that would require public services. In addition, as described above in Section 5.13, Population and Housing, the proposed modifications would not induce substantial population growth in the area. As such, there would be no increased demand for fire, police, school, or park services as a result of the proposed modifications. Therefore, the proposed modifications would not result in new significant impacts nor would they change the less-than-significant CEQA determination in the 2011 IS/MND.

5.15. Recreation

The 2011 IS/MND determined that the HMC Project would not induce population growth, and therefore would not impact existing recreational facilities or require the construction or expansion of recreational facilities. As described above in Section 5.13, Population and Housing, the proposed modifications would also not substantially induce population growth directly or indirectly. Therefore, the proposed modifications would not change the 2011 CEQA determination, and there would be no impacts to recreation.

5.16. Transportation/Traffic

The 2011 IS/MND determined that the HMC Project would have less-than-significant impacts related to transportation and traffic with implementation of mitigation measures TR-1 and TR-2. As described in the 2011 IS/MND, construction of the HMC Project would occur over two phases, Phase 1 and Phase 2.

The majority of the proposed modifications would occur during Phase 1. Construction activities associated with the demolition and replacement of the M&E Shop and the Central Warehouse are the major construction activities associated with the proposed modifications. In addition, the proposed modifications would result in an increase in the number of employees at the M&E Shop. The remaining components of the proposed modifications would not result in a substantial increase in construction trips or trips associated with new employees. As discussed below, the proposed modifications would not result in a change in the CEQA determination for transportation and traffic in the 2011 IS/MND.

5.16.1. Construction Traffic

Phase 1 of the HMC Project would include alterations to the Vehicle Overhaul Shop, the Component Repair Shop, the Central Warehouse, and the M&E Shop. Construction of Phase 1 would occur over a 36-month period. The 2011 IS/MND calculated that the Phase 1 construction activities would generate approximately 3,110 construction truck trips. The 2013 Addendum estimated an additional 500 truck trips, increasing the truck activity for Phase 1 construction to 3,610 truck trips.

The proposed modifications to demolish and replace the existing M&E Shop and Central Warehouse (rather than retrofitting the structures as previously approved) would result in construction activities similar to those described in the 2011 IS/MND for the Overhaul Shop. Table 5 outlines the estimated truckloads required for the demolition and construction of the new buildings.

Table 5: Truckload Generation for the Proposed Modifications to the Approved HMC Project

	Existing Square Footage	Proposed Square Footage	Demolition Truckloads[1]	Construction Truckloads[2]
M&E Shop	120,000	195,000	700	2,270
Central Warehouse	120,000	126,000	700	1,465
Total	**240,000**	**321,000**	**1,400**	**3,735**

Notes:
1. Assumes 500 truckloads for each 86,000 square feet demolished.
2. Assumes 500 truckloads for each 43,000 square feet constructed.
Source: AECOM, 2016

The two-month demolition of the existing M&E Shop and Central Warehouse would result in an additional 1,400 truckloads (2,800 truck trips)[3] during Phase 1. Assuming that the 2,800 truck trips are evenly distributed across the 40 working days of the demolition phase, an increase of approximately 70 daily trips would be expected. Therefore, a total of approximately 180 truck trips per day is estimated, including the previously approved demolition activities: 100 to 105 daily truck trips identified in the 2011 IS/MND, and the additional six trips identified in the 2013 Addendum. Applying the passenger car equivalent rate (PCE) rate of 2.0, there would be approximately 360 vehicle trips per day during the demolition phase.

During the 11-month construction phase, 3,735 truckloads (7,470 truck trips) would be added to the Phase 1 construction scenario. Assuming that the 7,470 truck trips are evenly distributed across the 220 working days of the 11-month construction phase, an increase of approximately 34 daily trips would be expected. Therefore, construction of the M&E Shop and Central Warehouse would result in a total of approximately 144 truck trips per day, including the previously approved construction activities: 100 to 105 daily truck trips identified in the 2011 IS/MND, and the additional six trips identified in the 2013 Addendum. Applying the passenger car equivalent rate (PCE) rate of 2.0, there would be approximately 290 vehicle trips per day during the construction phase.

During the demolition and construction of the two buildings, existing operations in these two buildings would cease and the buildings vacated prior to demolition. The existing warehouse facilities generate approximately 710 daily vehicle trips with up to 32 percent (about 225 truck trips) being 2-axle trucks with six tires or larger, which exceeds the estimated construction vehicle trips from the proposed modifications. As a result, the trips during the demolition and construction phases at M&E Shop and the Central Warehouse would be less than under existing conditions and would not result in a significant traffic impact.

Furthermore, mitigation measure TR-1 requires that the contractor develop and implement a plan to define traffic operations to minimize the effect of the construction efforts by specifying predetermined haul routes and identifying construction activities that, due to concerns regarding traffic safety or congestion, must take place during off-peak hours. This mitigation measure will also apply to the proposed modifications. Because the trips during construction of the proposed modifications would be less than existing conditions and mitigation measure TR-1 would be implemented, the demolition and reconstruction of the M&E Shop and Central Warehouse would not result in new or more severe impacts compared to those described in the 2011 IS/MND.

[3] Each truckload is equivalent to two truck trips: one trip to enter the site and one trip to exit the site.

5.16.2. Operational Traffic

After construction, the proposed modifications would result in a total of 665 employees at the HMC, of which 135 employees would be relocated from the existing Hayward Yard to the new facilities. These changes are summarized in Table 1 in Section 4, Proposed Modifications, of this Addendum. The proposed modifications would result in a net increase of 530 new employees, or 315 more than what was assumed in the 2011 IS/MND. A traffic analysis was completed to determine if the proposed increase in the number of employees at the BART Hayward Maintenance HMC would result in new or more severe impacts to the local transportation network.[4] The analysis updated the existing conditions from those reported in the 2011 IS/MND to 2016 conditions and compared these conditions with the new anticipated employee numbers to determine if significant impacts would result.

Similar to the 2011 IS/MND, the Traffic Impact Analysis (TIA) analyzed four study intersections:

1. Huntwood Avenue / Industrial Parkway W (Hayward)
2. Huntwood Avenue / Sandoval Way (Hayward)
3. I-880 NB Ramps / Whipple Road / Industrial Parkway SW (Caltrans intersection in Hayward)
4. Whipple Road / Mission Boulevard (Caltrans intersection in Union City)

Intersection turning movement volumes at the four study intersections were collected in October 2016 during the AM peak hour (7:00 a.m. to 9:00 a.m.) and during the PM peak hour (4:00 p.m. to 6:00 p.m.). In addition, 24-hour volume counts were collected at the two driveways to the project site (Sandoval Way and Whipple Road) in October 2016. Traffic volumes were then projected and impacts were assessed for the following scenarios two during the AM and PM peak hours:

1. Existing Conditions – Traffic conditions were evaluated based on existing lane geometries, traffic controls, and traffic volumes; and

2. Existing plus Project Conditions – Traffic conditions were evaluated with the proposed employee trips added to existing traffic volumes.

Two of the four study intersections (Intersections #1 and #2) are operated and maintained by the City of Hayward, and the city's significance thresholds were used for these intersections. The other two intersections are owned and maintained by Caltrans. Caltrans recommends using the significance threshold of the jurisdiction where the intersection is located. Therefore, the applicable threshold for Intersection #3 (I-880 NB Ramps / Whipple Road / Industrial Parkway SW) is that of the City of Hayward, and the applicable threshold for Intersection #4 (Whipple Road / Mission Boulevard) is that of Union City.

According to the City of Hayward guidelines for signalized intersections,

- LOS E is treated as an acceptable LOS. If the project causes an intersection operating at LOS E or better to fall below LOS E, then the project would result in a significant impact.

- For an intersection already operating at unacceptable LOS F, if the project increases the average control delay by five (5) seconds or more, the project would result in a significant impact.

[4] AECOM, Traffic Impact Analysis Hayward Maintenance Complex Refinements Project, November 2016.

According to the City of Union City guidelines for signalized intersections,

- LOS D is treated as an acceptable LOS. If the project causes an intersection operating at LOS D or better to fall below LOS D, then the project would result in a significant impact.

The TIA determined that under Existing Conditions, three of the study area intersections (Intersections #2, #3, and #4) operate within acceptable levels of service LOS). For Intersection #1, the LOS during the AM peak hour is within acceptable levels, but during the PM peak hour, Intersection #1 operates at an unacceptable LOS F.

Trip generation was estimated using the same daily trip generation rate of 2.6 trip/employee assumed for the 2011 IS/MND. The number of trips estimated under existing conditions and with the proposed modifications are shown in Table 6. As shown, the estimated new project trips for the net new 530 employees projected at the HMC is 1,378 daily trips. The 2011 IS/MND estimated that 6.6 percent and 3.3 percent of the daily trips are AM peak and PM peak hour trips, respectively. The in/out split during the AM and PM peak hour and the distribution of trips between the two site access points (Sandoval Way and Whipple Road) used in the TIA were also based on the assumptions included in the 2011 analysis. The TIA did does not include the 20 percent trip reduction that had been attributed to the proposed station platform for use by employees since this element is no longer part of the project.

Table 6: Project Trip Generation

	Number of Employees	Daily Vehicle Trip Rate	Daily Vehicle-Trips	AM Peak Hour - % of Daily trips	AM Peak Hr Trips	PM Peak Hour - % of Daily trips	PM Peak Hr Trips
Existing							
BART Hayward Yard[1]	280	2.6/ employee	726	6.6%	48	3.3%	24
Proposed Modifications							
BART Hayward Yard	145	2.6/ employee	377	6.6%	25	3.3%	13
BART HMC	665		1729		114		57
Total	*810*	--	*2106*		139		70
Net Change in Vehicle Trips			**1,378**		**91**		**46**

AM peak in = 73%, out = 27%
PM peak in = 16%, out = 84%
Sandoval Way Access distribution = 73%
Whipple Road Access distribution = 27%

Note:
[1] Existing information for employee number, trip rate, peak hour %, vehicular distribution and split were obtained from the 2011 IS/MND. The shift of 135 employees to the HMC under the proposed project is reflected in the table.

The LOS of the study intersections under Existing plus Project Conditions is depicted in Table 7. As shown, three study intersections (Intersections #2, #3, and #4) are expected to operate within acceptable levels of service with or without the proposed modifications. For Intersection #1, the LOS during the AM peak hour is within acceptable levels. During the PM peak hour, however, the intersection currently operates at an unacceptable LOS F and would remain at LOS F with the proposed modifications. The increase in average delay under proposed modifications conditions would be less than five seconds; therefore, the impact would be less than significant, based on the City of Hayward significance criteria.

Table 7 – LOS and Delay Comparison without and with Proposed Modifications

Intersection		Peak Hour	No Project		With Proposed Modifications		
			LOS	Avg Delay (sec)	LOS	Avg Delay (sec)	Δ in Avg delay[1] (sec)
1	Huntwood Avenue / Industrial Parkway W[2]	AM	E	69.7	E	73.2	n/a
		PM	**F**	**82.9**	**F**	**82.4**	-0.5
2	Huntwood Avenue / Sandoval Way	AM	C	26.3	C	27.5	n/a
		PM	C	29.7	C	30.1	
3	I-880 NB Ramps / Whipple Road / Industrial Parkway	AM	E	73.5	E	75.0	n/a
		PM	D	47.3	D	47.3	
4	Whipple Road / Mission Boulevard	AM	D	45.2	D	45.7	n/a
		PM	C	34.3	C	34.3	
5	Whipple Road / BART Access Road[3]	AM	**F**	**112.7**	**F**	**134.4**	21.7
		PM	**E**	**47.0**	**E**	**49.2**	2.2

Notes: Bold indicates LOS at unacceptable levels

1. Change in average delay only calculated for intersection at unacceptable level under 'with project' conditions to determine project impact.
2. Calculated average delay under 'with project' condition decreases as project trips are added to non-critical movements, resulting in more vehicles being able to get through the intersection. This does not reflect the actual delay experienced by drivers.
3. Unsignalized access located in Union City: acceptable LOS is D or better. Worst approach LOS and delay reported for unsignalized intersection.

Source: AECOM, 2016.

In addition to four signalized study intersections, the unsignalized project driveway at Whipple Road was evaluated. Unlike signalized intersections, the analysis for unsignalized intersections examines the LOS and delay for the worst approach into the intersection. Currently, the worst approach operates at LOS F and LOS E during the AM and PM peak hour, respectively. With the project, the LOS of the worst approach during the AM and PM peak hours would remain the same as the LOS without the project.

The worst approach for this access is in the southbound direction, which is the route used by vehicles exiting the project site. The main traffic flow on Whipple Road continues to operate at LOS A, even with the proposed modifications. The high delay reported at this project driveway would affect only vehicles leaving the project site and not the non-project traffic. Any queues of cars trying to enter the intersection would be within the project site and would not impede the traffic flow along Whipple Road. Because Whipple Road and the driveway across from the HMC access would operate at an acceptable LOS, the proposed modifications would cause a less-than-significant impact at the Whipple Road access during the peak hour.

5.16.3. Transit, Pedestrian, and Bicycle Impacts

The nearest transit facility to the HMC is a pair of bus stops along Huntwood Avenue, near the intersection with Sandoval Way. Line 85 of AC Transit serves this pair of stops which connects to the nearest BART station – South Hayward. Line 85 also serves a pair of bus stops near the intersection of Huntwood Avenue / Whipple Road. Additional bus services, Line 99 and Line 801 (night service), can be

found along Mission Boulevard which is east of the HMC. These services have stops along Mission Boulevard, between Industrial Parkway and Whipple Road. The current number of BART employees taking transit to the Hayward Yard is low and this trend is expected to continue in the future when the project is completed. There is sufficient capacity on the transit services to meet the needs of the expected increase in employees. As such, the project would have a less-than-significant transit impact.

In the HMC vicinity, there is a separated Class I bikeway along Industrial Parkway W and Mission Boulevard. A Class II bike lane is found along Huntwood Avenue and along a short section of Whipple Road, between Railroad Avenue and A Street. The current trend of low number of employees cycling to work is expected to continue into the future. In addition, the peak hour intersection counts indicate that the bike facilities in the project vicinity have sufficient capacity to accommodate the number of peak hour cyclists, including any increase due to the proposed modifications in the future. As such, the proposed modifications would have a less-than-significant impact on bicycle facilities.

For pedestrians, there is a sidewalk along one or both sides of Whipple Road between Mission Boulevard and I-880. Although there is no sidewalk along Sandoval Way, the signalized intersections of Huntwood Avenue / Sandoval Way and Huntwood Avenue / Industrial Parkway W provide crosswalks at all approaches. Huntwood Avenue has sidewalk along both sides, and Industrial Parkway W has a sidewalk on the north side. Based on the peak hour intersection counts collected for this analysis, the current pedestrian facilities in the project vicinity have sufficient capacity to accommodate the expected increase in usage due to the additional employees. As such, the proposed modifications would have a less-than-significant pedestrian impact.

5.17. Utilities and Service Systems

The 2011 IS/MND determined that the HMC Project would result in less-than-significant impacts to utilities and service systems.

The proposed modifications would be constructed within the area previously evaluated and would not result in a substantial change in the operation of the HMC. Nevertheless, the proposed modifications would result in an increased number of employees that would have a corresponding increase in the demand on utilities or service systems. Using the water and wastewater consumption estimates for the four-building maintenance complex from the 2011 IS/MND and applying those figures to the proposed modifications, the water demand would increase from 0.01 million gallons per day (mgd) to 0.026 mgd, and wastewater flows to the City of Hayward Water Pollution Control Facility would increase from 0.009 mgd to 0.022 mgd. There is ample capacity at the City's water supply and wastewater facilities to absorb the additional demand (estimated at 32 mgd water delivery capacity and 16.5 mgd wastewater treatment capacity). Therefore, the proposed modifications would not create new significant impacts nor would they change the less-than-significant impact on utilities and service systems as determined in the 2011 IS/MND.

Attachment A
CalEEMod Outputs

BART HMC Construction

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	490.63	1000sqft	53.00	490,630.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2017
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - BART HMC construction emissions

Land Use - Lot acreage based on total Phase 1 (28 acre) and Phase 2 (13 acre development and 12 acre existing reconfiguration).

Grading - Import and export based on Phase 1 and Phase 2 totals

Demolition -

Trips and VMT -

Vehicle Trips - Operational emissions not calculated here

Energy Use -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	250.00

tblArchitecturalCoating	EF_Residential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	250.00
tblGrading	MaterialExported	0.00	14,800.00
tblGrading	MaterialImported	0.00	46,500.00
tblLandUse	LotAcreage	11.26	53.00
tblProjectCharacteristics	OperationalYear	2014	2017
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.7743	8.3149	6.5378	0.0107	1.1659	0.3662	1.5321	0.4635	0.3385	0.8020	0.0000	962.6257	962.6257	0.1709	0.0000	966.2145
2018	0.5395	4.0148	4.8257	8.9100e-003	0.3115	0.2097	0.5212	0.0843	0.1968	0.2811	0.0000	734.3943	734.3943	0.0879	0.0000	736.2393
2019	0.4813	3.6293	4.5901	8.9000e-003	0.3115	0.1814	0.4929	0.0843	0.1703	0.2546	0.0000	719.7630	719.7630	0.0858	0.0000	721.5649
2020	0.4379	3.2717	4.4214	8.9300e-003	0.3127	0.1582	0.4709	0.0846	0.1486	0.2332	0.0000	704.9903	704.9903	0.0845	0.0000	706.7646
2021	0.4006	2.9052	4.2724	8.8900e-003	0.3115	0.1359	0.4475	0.0843	0.1276	0.2119	0.0000	698.7078	698.7078	0.0829	0.0000	700.4483
2022	5.7734	0.7179	1.0655	2.0300e-003	0.0489	0.0353	0.0842	0.0132	0.0329	0.0460	0.0000	164.0691	164.0691	0.0329	0.0000	164.7601
Total	**8.4070**	**22.8538**	**25.7128**	**0.0483**	**2.4620**	**1.0867**	**3.5487**	**0.8142**	**1.0146**	**1.8288**	**0.0000**	**3,984.5501**	**3,984.5501**	**0.5448**	**0.0000**	**3,995.9917**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.7742	8.3149	6.5378	0.0107	1.1659	0.3662	1.5321	0.4635	0.3385	0.8020	0.0000	962.6250	962.6250	0.1709	0.0000	966.2138
2018	0.5395	4.0148	4.8257	8.9100e-003	0.3115	0.2097	0.5212	0.0843	0.1968	0.2811	0.0000	734.3939	734.3939	0.0879	0.0000	736.2390
2019	0.4813	3.6293	4.5901	8.9000e-003	0.3115	0.1814	0.4929	0.0843	0.1703	0.2546	0.0000	719.7627	719.7627	0.0858	0.0000	721.5645
2020	0.4379	3.2717	4.4214	8.9300e-003	0.3127	0.1582	0.4709	0.0846	0.1486	0.2332	0.0000	704.9899	704.9899	0.0845	0.0000	706.7642
2021	0.4006	2.9052	4.2724	8.8900e-003	0.3115	0.1359	0.4475	0.0843	0.1276	0.2119	0.0000	698.7074	698.7074	0.0829	0.0000	700.4480
2022	5.7734	0.7179	1.0655	2.0300e-003	0.0489	0.0353	0.0842	0.0132	0.0329	0.0460	0.0000	164.0689	164.0689	0.0329	0.0000	164.7599
Total	**8.4070**	**22.8538**	**25.7128**	**0.0483**	**2.4620**	**1.0867**	**3.5487**	**0.8142**	**1.0146**	**1.8288**	**0.0000**	**3,984.5479**	**3,984.5479**	**0.5448**	**0.0000**	**3,995.9894**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.1724	4.0000e-005	4.5900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.7700e-003	8.7700e-003	2.0000e-005	0.0000	9.2800e-003
Energy	0.0679	0.6176	0.5188	3.7100e-003		0.0469	0.0469		0.0469	0.0469	0.0000	1,852.7270	1,852.7270	0.0663	0.0234	1,861.3629

Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	123.4956	0.0000	123.4956	7.2984	0.0000	276.7617
Water						0.0000	0.0000		0.0000	0.0000	35.9951	178.5970	214.5921	3.7051	0.0890	319.9789
Total	**2.2404**	**0.6177**	**0.5234**	**3.7100e-003**	**0.0000**	**0.0470**	**0.0470**	**0.0000**	**0.0470**	**0.0470**	**159.4907**	**2,031.3328**	**2,190.8235**	**11.0698**	**0.1123**	**2,458.1128**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.1724	4.0000e-005	4.5900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.7700e-003	8.7700e-003	2.0000e-005	0.0000	9.2800e-003
Energy	0.0679	0.6176	0.5188	3.7100e-003		0.0469	0.0469		0.0469	0.0469	0.0000	1,852.7270	1,852.7270	0.0663	0.0234	1,861.3629
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	123.4956	0.0000	123.4956	7.2984	0.0000	276.7617
Water						0.0000	0.0000		0.0000	0.0000	35.9951	178.5970	214.5921	3.7044	0.0888	319.9214
Total	**2.2404**	**0.6177**	**0.5234**	**3.7100e-003**	**0.0000**	**0.0470**	**0.0470**	**0.0000**	**0.0470**	**0.0470**	**159.4907**	**2,031.3328**	**2,190.8235**	**11.0691**	**0.1122**	**2,458.0553**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.12**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2017	4/7/2017	5	70	
2	Site Preparation	Site Preparation	4/8/2017	6/2/2017	5	40	
3	Grading	Grading	6/3/2017	11/3/2017	5	110	
4	Building Construction	Building Construction	11/4/2017	2/4/2022	5	1110	
5	Paving	Paving	2/5/2022	5/20/2022	5	75	
6	Architectural Coating	Architectural Coating	5/21/2022	9/2/2022	5	75	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 275

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 735,945; Non-Residential Outdoor: 245,315 (Architectural Coating

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	162	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	162	0.38
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	125	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	174	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Paving	Paving Equipment	2	8.00	130	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	1,660.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	7,663.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	206.00	80.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	41.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1796	0.0000	0.1796	0.0272	0.0000	0.0272	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1417	1.4944	1.1863	1.4000e-003		0.0744	0.0744		0.0693	0.0693	0.0000	128.1638	128.1638	0.0352	0.0000	128.9021
Total	**0.1417**	**1.4944**	**1.1863**	**1.4000e-003**	**0.1796**	**0.0744**	**0.2540**	**0.0272**	**0.0693**	**0.0965**	**0.0000**	**128.1638**	**128.1638**	**0.0352**	**0.0000**	**128.9021**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0177	0.2233	0.1977	6.3000e-004	0.0140	2.8800e-003	0.0169	3.8500e-003	2.6400e-003	6.4900e-003	0.0000	56.2939	56.2939	4.1000e-004	0.0000	56.3025
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7800e-003	2.6600e-003	0.0255	6.0000e-005	4.7700e-003	4.0000e-005	4.8000e-003	1.2700e-003	4.0000e-005	1.3000e-003	0.0000	4.1695	4.1695	2.2000e-004	0.0000	4.1742
Total	**0.0195**	**0.2259**	**0.2232**	**6.9000e-004**	**0.0188**	**2.9200e-003**	**0.0217**	**5.1200e-003**	**2.6800e-003**	**7.7900e-003**	**0.0000**	**60.4634**	**60.4634**	**6.3000e-004**	**0.0000**	**60.4767**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1796	0.0000	0.1796	0.0272	0.0000	0.0272	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1417	1.4944	1.1863	1.4000e-003		0.0744	0.0744		0.0693	0.0693	0.0000	128.1636	128.1636	0.0352	0.0000	128.9019
Total	**0.1417**	**1.4944**	**1.1863**	**1.4000e-003**	**0.1796**	**0.0744**	**0.2540**	**0.0272**	**0.0693**	**0.0965**	**0.0000**	**128.1636**	**128.1636**	**0.0352**	**0.0000**	**128.9019**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0177	0.2233	0.1977	6.3000e-004	0.0140	2.8800e-003	0.0169	3.8500e-003	2.6400e-003	6.4900e-003	0.0000	56.2939	56.2939	4.1000e-004	0.0000	56.3025
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7800e-003	2.6600e-003	0.0255	6.0000e-005	4.7700e-003	4.0000e-005	4.8000e-003	1.2700e-003	4.0000e-005	1.3000e-003	0.0000	4.1695	4.1695	2.2000e-004	0.0000	4.1742
Total	**0.0195**	**0.2259**	**0.2232**	**6.9000e-004**	**0.0188**	**2.9200e-003**	**0.0217**	**5.1200e-003**	**2.6800e-003**	**7.7900e-003**	**0.0000**	**60.4634**	**60.4634**	**6.3000e-004**	**0.0000**	**60.4767**

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3613	0.0000	0.3613	0.1986	0.0000	0.1986	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0968	1.0351	0.7879	7.8000e-004		0.0551	0.0551		0.0507	0.0507	0.0000	72.6308	72.6308	0.0223	0.0000	73.0981
Total	**0.0968**	**1.0351**	**0.7879**	**7.8000e-004**	**0.3613**	**0.0551**	**0.4164**	**0.1986**	**0.0507**	**0.2493**	**0.0000**	**72.6308**	**72.6308**	**0.0223**	**0.0000**	**73.0981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2200e-003	1.8200e-003	0.0175	4.0000e-005	3.2700e-003	3.0000e-005	3.2900e-003	8.7000e-004	2.0000e-005	8.9000e-004	0.0000	2.8591	2.8591	1.5000e-004	0.0000	2.8623
Total	**1.2200e-003**	**1.8200e-003**	**0.0175**	**4.0000e-005**	**3.2700e-003**	**3.0000e-005**	**3.2900e-003**	**8.7000e-004**	**2.0000e-005**	**8.9000e-004**	**0.0000**	**2.8591**	**2.8591**	**1.5000e-004**	**0.0000**	**2.8623**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3613	0.0000	0.3613	0.1986	0.0000	0.1986	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0968	1.0351	0.7879	7.8000e-004		0.0551	0.0551		0.0507	0.0507	0.0000	72.6307	72.6307	0.0223	0.0000	73.0980
Total	**0.0968**	**1.0351**	**0.7879**	**7.8000e-004**	**0.3613**	**0.0551**	**0.4164**	**0.1986**	**0.0507**	**0.2493**	**0.0000**	**72.6307**	**72.6307**	**0.0223**	**0.0000**	**73.0980**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2200e-003	1.8200e-003	0.0175	4.0000e-005	3.2700e-003	3.0000e-005	3.2900e-003	8.7000e-004	2.0000e-005	8.9000e-004	0.0000	2.8591	2.8591	1.5000e-004	0.0000	2.8623
Total	**1.2200e-003**	**1.8200e-003**	**0.0175**	**4.0000e-005**	**3.2700e-003**	**3.0000e-005**	**3.2900e-003**	**8.7000e-004**	**2.0000e-005**	**8.9000e-004**	**0.0000**	**2.8591**	**2.8591**	**1.5000e-004**	**0.0000**	**2.8623**

3.4 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4805	0.0000	0.4805	0.1983	0.0000	0.1983	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3355	3.8276	2.5743	3.3900e-003		0.1825	0.1825		0.1679	0.1679	0.0000	315.0066	315.0066	0.0965	0.0000	317.0334
Total	**0.3355**	**3.8276**	**2.5743**	**3.3900e-003**	**0.4805**	**0.1825**	**0.6630**	**0.1983**	**0.1679**	**0.3662**	**0.0000**	**315.0066**	**315.0066**	**0.0965**	**0.0000**	**317.0334**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0819	1.0306	0.9128	2.8900e-003	0.0647	0.0133	0.0779	0.0178	0.0122	0.0300	0.0000	259.8675	259.8675	1.8900e-003	0.0000	259.9073
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7300e-003	5.5700e-003	0.0534	1.2000e-004	9.9800e-003	8.0000e-005	0.0101	2.6600e-003	7.0000e-005	2.7300e-003	0.0000	8.7361	8.7361	4.7000e-004	0.0000	8.7459
Total	**0.0856**	**1.0362**	**0.9662**	**3.0100e-003**	**0.0746**	**0.0134**	**0.0880**	**0.0204**	**0.0123**	**0.0327**	**0.0000**	**268.6036**	**268.6036**	**2.3600e-003**	**0.0000**	**268.6532**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4805	0.0000	0.4805	0.1983	0.0000	0.1983	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3355	3.8276	2.5743	3.3900e-003		0.1825	0.1825		0.1679	0.1679	0.0000	315.0062	315.0062	0.0965	0.0000	317.0331
Total	**0.3355**	**3.8276**	**2.5743**	**3.3900e-003**	**0.4805**	**0.1825**	**0.6630**	**0.1983**	**0.1679**	**0.3662**	**0.0000**	**315.0062**	**315.0062**	**0.0965**	**0.0000**	**317.0331**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0819	1.0306	0.9128	2.8900e-003	0.0647	0.0133	0.0779	0.0178	0.0122	0.0300	0.0000	259.8675	259.8675	1.8900e-003	0.0000	259.9073
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7300e-003	5.5700e-003	0.0534	1.2000e-004	9.9800e-003	8.0000e-005	0.0101	2.6600e-003	7.0000e-005	2.7300e-003	0.0000	8.7361	8.7361	4.7000e-004	0.0000	8.7459
Total	**0.0856**	**1.0362**	**0.9662**	**3.0100e-003**	**0.0746**	**0.0134**	**0.0880**	**0.0204**	**0.0123**	**0.0327**	**0.0000**	**268.6036**	**268.6036**	**2.3600e-003**	**0.0000**	**268.6532**

3.5 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0621	0.5281	0.3626	5.4000e-004		0.0356	0.0356		0.0335	0.0335	0.0000	47.8958	47.8958	0.0118	0.0000	48.1434

Total	**0.0621**	**0.5281**	**0.3626**	**5.4000e-004**		**0.0356**	**0.0356**		**0.0335**	**0.0335**	**0.0000**	**47.8958**	**47.8958**	**0.0118**	**0.0000**	**48.1434**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0180	0.1450	0.2198	3.8000e-004	0.0104	2.1100e-003	0.0125	2.9700e-003	1.9400e-003	4.9100e-003	0.0000	34.2822	34.2822	2.7000e-004	0.0000	34.2879
Worker	0.0140	0.0209	0.2000	4.5000e-004	0.0374	3.0000e-004	0.0377	9.9500e-003	2.8000e-004	0.0102	0.0000	32.7205	32.7205	1.7600e-003	0.0000	32.7574
Total	**0.0319**	**0.1658**	**0.4199**	**8.3000e-004**	**0.0478**	**2.4100e-003**	**0.0502**	**0.0129**	**2.2200e-003**	**0.0151**	**0.0000**	**67.0028**	**67.0028**	**2.0300e-003**	**0.0000**	**67.0453**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0621	0.5281	0.3626	5.4000e-004		0.0356	0.0356		0.0335	0.0335	0.0000	47.8958	47.8958	0.0118	0.0000	48.1433
Total	**0.0621**	**0.5281**	**0.3626**	**5.4000e-004**		**0.0356**	**0.0356**		**0.0335**	**0.0335**	**0.0000**	**47.8958**	**47.8958**	**0.0118**	**0.0000**	**48.1433**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0180	0.1450	0.2198	3.8000e-004	0.0104	2.1100e-003	0.0125	2.9700e-003	1.9400e-003	4.9100e-003	0.0000	34.2822	34.2822	2.7000e-004	0.0000	34.2879
Worker	0.0140	0.0209	0.2000	4.5000e-004	0.0374	3.0000e-004	0.0377	9.9500e-003	2.8000e-004	0.0102	0.0000	32.7205	32.7205	1.7600e-003	0.0000	32.7574
Total	**0.0319**	**0.1658**	**0.4199**	**8.3000e-004**	**0.0478**	**2.4100e-003**	**0.0502**	**0.0129**	**2.2200e-003**	**0.0151**	**0.0000**	**67.0028**	**67.0028**	**2.0300e-003**	**0.0000**	**67.0453**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3483	3.0355	2.2880	3.5000e-003		0.1950	0.1950		0.1833	0.1833	0.0000	308.9844	308.9844	0.0756	0.0000	310.5723
Total	**0.3483**	**3.0355**	**2.2880**	**3.5000e-003**		**0.1950**	**0.1950**		**0.1833**	**0.1833**	**0.0000**	**308.9844**	**308.9844**	**0.0756**	**0.0000**	**310.5723**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1105	0.8569	1.3736	2.5000e-003	0.0675	0.0127	0.0802	0.0194	0.0117	0.0311	0.0000	219.8378	219.8378	1.7100e-003	0.0000	219.8738
Worker	0.0808	0.1224	1.1641	2.9100e-003	0.2440	1.9100e-003	0.2459	0.0649	1.7700e-003	0.0667	0.0000	205.5720	205.5720	0.0105	0.0000	205.7932
Total	**0.1913**	**0.9792**	**2.5377**	**5.4100e-003**	**0.3115**	**0.0147**	**0.3262**	**0.0843**	**0.0135**	**0.0978**	**0.0000**	**425.4098**	**425.4098**	**0.0122**	**0.0000**	**425.6670**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3483	3.0355	2.2880	3.5000e-003		0.1950	0.1950		0.1833	0.1833	0.0000	308.9841	308.9841	0.0756	0.0000	310.5720
Total	**0.3483**	**3.0355**	**2.2880**	**3.5000e-003**		**0.1950**	**0.1950**		**0.1833**	**0.1833**	**0.0000**	**308.9841**	**308.9841**	**0.0756**	**0.0000**	**310.5720**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1105	0.8569	1.3736	2.5000e-003	0.0675	0.0127	0.0802	0.0194	0.0117	0.0311	0.0000	219.8378	219.8378	1.7100e-003	0.0000	219.8738

Worker	0.0808	0.1224	1.1641	2.9100e-003	0.2440	1.9100e-003	0.2459	0.0649	1.7700e-003	0.0667	0.0000	205.5720	205.5720	0.0105	0.0000	205.7932
Total	**0.1913**	**0.9792**	**2.5377**	**5.4100e-003**	**0.3115**	**0.0147**	**0.3262**	**0.0843**	**0.0135**	**0.0978**	**0.0000**	**425.4098**	**425.4098**	**0.0122**	**0.0000**	**425.6670**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3069	2.7359	2.2342	3.5000e-003		0.1677	0.1677		0.1577	0.1577	0.0000	305.5302	305.5302	0.0743	0.0000	307.0913
Total	**0.3069**	**2.7359**	**2.2342**	**3.5000e-003**		**0.1677**	**0.1677**		**0.1577**	**0.1577**	**0.0000**	**305.5302**	**305.5302**	**0.0743**	**0.0000**	**307.0913**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1010	0.7819	1.2995	2.4900e-003	0.0675	0.0118	0.0793	0.0194	0.0109	0.0303	0.0000	216.0406	216.0406	1.6700e-003	0.0000	216.0757
Worker	0.0735	0.1115	1.0564	2.9100e-003	0.2440	1.8700e-003	0.2459	0.0649	1.7300e-003	0.0666	0.0000	198.1922	198.1922	9.7900e-003	0.0000	198.3979
Total	**0.1745**	**0.8933**	**2.3559**	**5.4000e-003**	**0.3115**	**0.0137**	**0.3252**	**0.0843**	**0.0126**	**0.0969**	**0.0000**	**414.2328**	**414.2328**	**0.0115**	**0.0000**	**414.4736**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3069	2.7359	2.2342	3.5000e-003		0.1677	0.1677		0.1577	0.1577	0.0000	305.5299	305.5299	0.0743	0.0000	307.0909
Total	**0.3069**	**2.7359**	**2.2342**	**3.5000e-003**		**0.1677**	**0.1677**		**0.1577**	**0.1577**	**0.0000**	**305.5299**	**305.5299**	**0.0743**	**0.0000**	**307.0909**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1010	0.7819	1.2995	2.4900e-003	0.0675	0.0118	0.0793	0.0194	0.0109	0.0303	0.0000	216.0406	216.0406	1.6700e-003	0.0000	216.0757
Worker	0.0735	0.1115	1.0564	2.9100e-003	0.2440	1.8700e-003	0.2459	0.0649	1.7300e-003	0.0666	0.0000	198.1922	198.1922	9.7900e-003	0.0000	198.3979
Total	**0.1745**	**0.8933**	**2.3559**	**5.4000e-003**	**0.3115**	**0.0137**	**0.3252**	**0.0843**	**0.0126**	**0.0969**	**0.0000**	**414.2328**	**414.2328**	**0.0115**	**0.0000**	**414.4736**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Off-Road	0.2766	2.5000	2.2019	3.5100e-003		0.1458	0.1458		0.1371	0.1371	0.0000	302.1514	302.1514	0.0736	0.0000	303.6973
Total	**0.2766**	**2.5000**	**2.2019**	**3.5100e-003**		**0.1458**	**0.1458**		**0.1371**	**0.1371**	**0.0000**	**302.1514**	**302.1514**	**0.0736**	**0.0000**	**303.6973**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0927	0.6686	1.2415	2.5000e-003	0.0678	0.0106	0.0784	0.0195	9.7600e-003	0.0292	0.0000	211.8655	211.8655	1.6300e-003	0.0000	211.8997
Worker	0.0686	0.1031	0.9780	2.9200e-003	0.2449	1.8500e-003	0.2468	0.0652	1.7200e-003	0.0669	0.0000	190.9734	190.9734	9.2500e-003	0.0000	191.1676
Total	**0.1613**	**0.7717**	**2.2195**	**5.4200e-003**	**0.3127**	**0.0125**	**0.3251**	**0.0846**	**0.0115**	**0.0961**	**0.0000**	**402.8389**	**402.8389**	**0.0109**	**0.0000**	**403.0673**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2766	2.5000	2.2019	3.5100e-003		0.1458	0.1458		0.1371	0.1371	0.0000	302.1510	302.1510	0.0736	0.0000	303.6969
Total	**0.2766**	**2.5000**	**2.2019**	**3.5100e-003**		**0.1458**	**0.1458**		**0.1371**	**0.1371**	**0.0000**	**302.1510**	**302.1510**	**0.0736**	**0.0000**	**303.6969**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0927	0.6686	1.2415	2.5000e-003	0.0678	0.0106	0.0784	0.0195	9.7600e-003	0.0292	0.0000	211.8655	211.8655	1.6300e-003	0.0000	211.8997
Worker	0.0686	0.1031	0.9780	2.9200e-003	0.2449	1.8500e-003	0.2468	0.0652	1.7200e-003	0.0669	0.0000	190.9734	190.9734	9.2500e-003	0.0000	191.1676
Total	**0.1613**	**0.7717**	**2.2195**	**5.4200e-003**	**0.3127**	**0.0125**	**0.3251**	**0.0846**	**0.0115**	**0.0961**	**0.0000**	**402.8389**	**402.8389**	**0.0109**	**0.0000**	**403.0673**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2471	2.2629	2.1582	3.5000e-003		0.1246	0.1246		0.1172	0.1172	0.0000	301.0339	301.0339	0.0725	0.0000	302.5568
Total	**0.2471**	**2.2629**	**2.1582**	**3.5000e-003**		**0.1246**	**0.1246**		**0.1172**	**0.1172**	**0.0000**	**301.0339**	**301.0339**	**0.0725**	**0.0000**	**302.5568**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0891	0.5468	1.2050	2.4800e-003	0.0675	9.4900e-003	0.0770	0.0194	8.7300e-003	0.0281	0.0000	210.7619	210.7619	1.6200e-003	0.0000	210.7959
Worker	0.0645	0.0956	0.9092	2.9100e-003	0.2440	1.8300e-003	0.2458	0.0649	1.7000e-003	0.0666	0.0000	186.9120	186.9120	8.7400e-003	0.0000	187.0956
Total	**0.1535**	**0.6423**	**2.1142**	**5.3900e-003**	**0.3115**	**0.0113**	**0.3228**	**0.0843**	**0.0104**	**0.0947**	**0.0000**	**397.6739**	**397.6739**	**0.0104**	**0.0000**	**397.8915**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2471	2.2629	2.1582	3.5000e-003		0.1246	0.1246		0.1172	0.1172	0.0000	301.0335	301.0335	0.0725	0.0000	302.5565
Total	**0.2471**	**2.2629**	**2.1582**	**3.5000e-003**		**0.1246**	**0.1246**		**0.1172**	**0.1172**	**0.0000**	**301.0335**	**301.0335**	**0.0725**	**0.0000**	**302.5565**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0891	0.5468	1.2050	2.4800e-003	0.0675	9.4900e-003	0.0770	0.0194	8.7300e-003	0.0281	0.0000	210.7619	210.7619	1.6200e-003	0.0000	210.7959
Worker	0.0645	0.0956	0.9092	2.9100e-003	0.2440	1.8300e-003	0.2458	0.0649	1.7000e-003	0.0666	0.0000	186.9120	186.9120	8.7400e-003	0.0000	187.0956
Total	**0.1535**	**0.6423**	**2.1142**	**5.3900e-003**	**0.3115**	**0.0113**	**0.3228**	**0.0843**	**0.0104**	**0.0947**	**0.0000**	**397.6739**	**397.6739**	**0.0104**	**0.0000**	**397.8915**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0212	0.1942	0.2041	3.4000e-004		0.0101	0.0101		9.4800e-003	9.4800e-003	0.0000	28.8456	28.8456	6.9000e-003	0.0000	28.9906
Total	**0.0212**	**0.1942**	**0.2041**	**3.4000e-004**		**0.0101**	**0.0101**		**9.4800e-003**	**9.4800e-003**	**0.0000**	**28.8456**	**28.8456**	**6.9000e-003**	**0.0000**	**28.9906**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.1600e-003	0.0462	0.1100	2.4000e-004	6.4700e-003	9.0000e-004	7.3600e-003	1.8600e-003	8.2000e-004	2.6800e-003	0.0000	20.1694	20.1694	1.6000e-004	0.0000	20.1728
Worker	5.8400e-003	8.5500e-003	0.0814	2.8000e-004	0.0234	1.7000e-004	0.0236	6.2200e-003	1.6000e-004	6.3800e-003	0.0000	17.6113	17.6113	8.0000e-004	0.0000	17.6281

Total	**0.0140**	**0.0548**	**0.1914**	**5.2000e-004**	**0.0298**	**1.0700e-003**	**0.0309**	**8.0800e-003**	**9.8000e-004**	**9.0600e-003**	**0.0000**	**37.7808**	**37.7808**	**9.6000e-004**	**0.0000**	**37.8009**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0212	0.1942	0.2041	3.4000e-004		0.0101	0.0101		9.4800e-003	9.4800e-003	0.0000	28.8456	28.8456	6.9000e-003	0.0000	28.9905
Total	**0.0212**	**0.1942**	**0.2041**	**3.4000e-004**		**0.0101**	**0.0101**		**9.4800e-003**	**9.4800e-003**	**0.0000**	**28.8456**	**28.8456**	**6.9000e-003**	**0.0000**	**28.9905**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.1600e-003	0.0462	0.1100	2.4000e-004	6.4700e-003	9.0000e-004	7.3600e-003	1.8600e-003	8.2000e-004	2.6800e-003	0.0000	20.1694	20.1694	1.6000e-004	0.0000	20.1728
Worker	5.8400e-003	8.5500e-003	0.0814	2.8000e-004	0.0234	1.7000e-004	0.0236	6.2200e-003	1.6000e-004	6.3800e-003	0.0000	17.6113	17.6113	8.0000e-004	0.0000	17.6281
Total	**0.0140**	**0.0548**	**0.1914**	**5.2000e-004**	**0.0298**	**1.0700e-003**	**0.0309**	**8.0800e-003**	**9.8000e-004**	**9.0600e-003**	**0.0000**	**37.7808**	**37.7808**	**9.6000e-004**	**0.0000**	**37.8009**

3.6 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0406	0.4092	0.5356	8.4000e-004		0.0209	0.0209		0.0192	0.0192	0.0000	73.5053	73.5053	0.0238	0.0000	74.0046
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0406**	**0.4092**	**0.5356**	**8.4000e-004**		**0.0209**	**0.0209**		**0.0192**	**0.0192**	**0.0000**	**73.5053**	**73.5053**	**0.0238**	**0.0000**	**74.0046**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2800e-003	1.8700e-003	0.0178	6.0000e-005	5.1100e-003	4.0000e-005	5.1400e-003	1.3600e-003	4.0000e-005	1.3900e-003	0.0000	3.8471	3.8471	1.7000e-004	0.0000	3.8508
Total	**1.2800e-003**	**1.8700e-003**	**0.0178**	**6.0000e-005**	**5.1100e-003**	**4.0000e-005**	**5.1400e-003**	**1.3600e-003**	**4.0000e-005**	**1.3900e-003**	**0.0000**	**3.8471**	**3.8471**	**1.7000e-004**	**0.0000**	**3.8508**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Off-Road	0.0406	0.4092	0.5356	8.4000e-004		0.0209	0.0209		0.0192	0.0192	0.0000	73.5052	73.5052	0.0238	0.0000	74.0045
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0406**	**0.4092**	**0.5356**	**8.4000e-004**		**0.0209**	**0.0209**		**0.0192**	**0.0192**	**0.0000**	**73.5052**	**73.5052**	**0.0238**	**0.0000**	**74.0045**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2800e-003	1.8700e-003	0.0178	6.0000e-005	5.1100e-003	4.0000e-005	5.1400e-003	1.3600e-003	4.0000e-005	1.3900e-003	0.0000	3.8471	3.8471	1.7000e-004	0.0000	3.8508
Total	**1.2800e-003**	**1.8700e-003**	**0.0178**	**6.0000e-005**	**5.1100e-003**	**4.0000e-005**	**5.1400e-003**	**1.3600e-003**	**4.0000e-005**	**1.3900e-003**	**0.0000**	**3.8471**	**3.8471**	**1.7000e-004**	**0.0000**	**3.8508**

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.6852					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.6700e-003	0.0528	0.0680	1.1000e-004		3.0600e-003	3.0600e-003		3.0600e-003	3.0600e-003	0.0000	9.5747	9.5747	6.2000e-004	0.0000	9.5878
Total	**5.6929**	**0.0528**	**0.0680**	**1.1000e-004**		**3.0600e-003**	**3.0600e-003**		**3.0600e-003**	**3.0600e-003**	**0.0000**	**9.5747**	**9.5747**	**6.2000e-004**	**0.0000**	**9.5878**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4900e-003	5.1000e-003	0.0486	1.7000e-004	0.0140	1.0000e-004	0.0141	3.7100e-003	1.0000e-004	3.8100e-003	0.0000	10.5155	10.5155	4.8000e-004	0.0000	10.5255
Total	**3.4900e-003**	**5.1000e-003**	**0.0486**	**1.7000e-004**	**0.0140**	**1.0000e-004**	**0.0141**	**3.7100e-003**	**1.0000e-004**	**3.8100e-003**	**0.0000**	**10.5155**	**10.5155**	**4.8000e-004**	**0.0000**	**10.5255**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.6852					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.6700e-003	0.0528	0.0680	1.1000e-004		3.0600e-003	3.0600e-003		3.0600e-003	3.0600e-003	0.0000	9.5747	9.5747	6.2000e-004	0.0000	9.5878
Total	**5.6929**	**0.0528**	**0.0680**	**1.1000e-004**		**3.0600e-003**	**3.0600e-003**		**3.0600e-003**	**3.0600e-003**	**0.0000**	**9.5747**	**9.5747**	**6.2000e-004**	**0.0000**	**9.5878**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4900e-003	5.1000e-003	0.0486	1.7000e-004	0.0140	1.0000e-004	0.0141	3.7100e-003	1.0000e-004	3.8100e-003	0.0000	10.5155	10.5155	4.8000e-004	0.0000	10.5255
Total	**3.4900e-003**	**5.1000e-003**	**0.0486**	**1.7000e-004**	**0.0140**	**1.0000e-004**	**0.0141**	**3.7100e-003**	**1.0000e-004**	**3.8100e-003**	**0.0000**	**10.5155**	**10.5155**	**4.8000e-004**	**0.0000**	**10.5255**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-...	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.541334	0.061893	0.168156	0.111955	0.031019	0.004607	0.019268	0.049011	0.001782	0.003693	0.005649	0.000207	0.001427

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,180.3762	1,180.3762	0.0534	0.0110	1,184.9203
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,180.3762	1,180.3762	0.0534	0.0110	1,184.9203
NaturalGas Mitigated	0.0679	0.6176	0.5188	3.7100e-003		0.0469	0.0469		0.0469	0.0469	0.0000	672.3508	672.3508	0.0129	0.0123	676.4426
NaturalGas Unmitigated	0.0679	0.6176	0.5188	3.7100e-003		0.0469	0.0469		0.0469	0.0469	0.0000	672.3508	672.3508	0.0129	0.0123	676.4426

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	1.25994e+007	0.0679	0.6176	0.5188	3.7100e-003		0.0469	0.0469		0.0469	0.0469	0.0000	672.3508	672.3508	0.0129	0.0123	676.4426
Total		**0.0679**	**0.6176**	**0.5188**	**3.7100e-003**		**0.0469**	**0.0469**		**0.0469**	**0.0469**	**0.0000**	**672.3508**	**672.3508**	**0.0129**	**0.0123**	**676.4426**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	1.25994e+007	0.0679	0.6176	0.5188	3.7100e-003		0.0469	0.0469		0.0469	0.0469	0.0000	672.3508	672.3508	0.0129	0.0123	676.4426
Total		**0.0679**	**0.6176**	**0.5188**	**3.7100e-003**		**0.0469**	**0.0469**		**0.0469**	**0.0469**	**0.0000**	**672.3508**	**672.3508**	**0.0129**	**0.0123**	**676.4426**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	4.05751e+006	1,180.3762	0.0534	0.0110	1,184.9203
Total		**1,180.3762**	**0.0534**	**0.0110**	**1,184.9203**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	4.05751e+006	1,180.3762	0.0534	0.0110	1,184.9203
Total		**1,180.3762**	**0.0534**	**0.0110**	**1,184.9203**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.1724	4.0000e-005	4.5900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.7700e-003	8.7700e-003	2.0000e-005	0.0000	9.2800e-003
Unmitigated	2.1724	4.0000e-005	4.5900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.7700e-003	8.7700e-003	2.0000e-005	0.0000	9.2800e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2558					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.9162					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.4000e-004	4.0000e-005	4.5900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.7700e-003	8.7700e-003	2.0000e-005	0.0000	9.2800e-003
Total	**2.1724**	**4.0000e-005**	**4.5900e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.7700e-003**	**8.7700e-003**	**2.0000e-005**	**0.0000**	**9.2800e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Consumer Products	1.9162					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.4000e-004	4.0000e-005	4.5900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.7700e-003	8.7700e-003	2.0000e-005	0.0000	9.2800e-003
Architectural Coating	0.2558					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.1724**	**4.0000e-005**	**4.5900e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.7700e-003**	**8.7700e-003**	**2.0000e-005**	**0.0000**	**9.2800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e

Category	MT/yr			
Mitigated	214.5921	3.7044	0.0888	319.9214
Unmitigated	214.5921	3.7051	0.0890	319.9789

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	113.458 / 0	214.5921	3.7051	0.0890	319.9789
Total		**214.5921**	**3.7051**	**0.0890**	**319.9789**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	113.458 / 0	214.5921	3.7044	0.0888	319.9214
Total		**214.5921**	**3.7044**	**0.0888**	**319.9214**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	123.4956	7.2984	0.0000	276.7617
Unmitigated	123.4956	7.2984	0.0000	276.7617

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	608.38	123.4956	7.2984	0.0000	276.7617
Total		**123.4956**	**7.2984**	**0.0000**	**276.7617**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	608.38	123.4956	7.2984	0.0000	276.7617
Total		**123.4956**	**7.2984**	**0.0000**	**276.7617**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

BART HMC Operational

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	125.63	1000sqft	53.00	125,630.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2017
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	427.27	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.00617

1.3 User Entered Comments & Non-Default Data

Project Characteristics - BART HMC operational land use emissions. GHG intensity factors for PG&E electricity were updated to the latest available emissions data (The Climate Registry 2013).

Land Use - Project size based on net project size (490,630 sq ft of new buildings replacing 365,000 sq ft of existing)

Construction Phase - Construction emissions not calculated here.

Off-road Equipment - Construction emissions not being calculated here.

Vehicle Trips - Based on net trip rate generation of 473 trips/day. Same trip rate assumed for weekdays and weekends.

Energy Use -

Water And Wastewater - Water use assumed same from 2011 ISMND

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	PhaseEndDate	4/7/2017	1/4/2011
tblConstructionPhase	PhaseStartDate	1/1/2017	1/2/2011

tblLandUse	LotAcreage	2.88	53.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0	0.029
tblProjectCharacteristics	CO2IntensityFactor	0	427.27
tblProjectCharacteristics	N2OIntensityFactor	0	0.00617
tblProjectCharacteristics	OperationalYear	2014	2017
tblVehicleTrips	ST_TR	1.32	3.77
tblVehicleTrips	SU_TR	0.68	3.77
tblVehicleTrips	WD_TR	6.97	3.77
tblWater	IndoorWaterUseRate	29,051,937.50	3,519,630.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5563	1.0000e-005	1.1800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2400e-003	2.2400e-003	1.0000e-005	0.0000	2.3800e-003
Energy	0.0174	0.1582	0.1328	9.5000e-004		0.0120	0.0120		0.0120	0.0120	0.0000	373.5183	373.5183	0.0170	6.0600e-003	375.7544
Mobile	0.3328	1.0857	3.7937	7.8500e-003	0.5172	0.0143	0.5314	0.1390	0.0131	0.1521	0.0000	613.6565	613.6565	0.0234	0.0000	614.1468
Waste						0.0000	0.0000		0.0000	0.0000	31.6219	0.0000	31.6219	1.8688	0.0000	70.8668
Water						0.0000	0.0000		0.0000	0.0000	1.1166	3.6910	4.8076	0.1149	2.7600e-003	8.0773

Total	**0.9065**	**1.2439**	**3.9277**	**8.8000e-003**	**0.5172**	**0.0263**	**0.5435**	**0.1390**	**0.0252**	**0.1641**	**32.7386**	**990.8680**	**1,023.6065**	**2.0241**	**8.8200e-003**	**1,068.8477**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5563	1.0000e-005	1.1800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2400e-003	2.2400e-003	1.0000e-005	0.0000	2.3800e-003
Energy	0.0174	0.1582	0.1328	9.5000e-004		0.0120	0.0120		0.0120	0.0120	0.0000	373.5183	373.5183	0.0170	6.0600e-003	375.7544
Mobile	0.3328	1.0857	3.7937	7.8500e-003	0.5172	0.0143	0.5314	0.1390	0.0131	0.1521	0.0000	613.6565	613.6565	0.0234	0.0000	614.1468
Waste						0.0000	0.0000		0.0000	0.0000	31.6219	0.0000	31.6219	1.8688	0.0000	70.8668
Water						0.0000	0.0000		0.0000	0.0000	1.1166	3.6910	4.8076	0.1149	2.7600e-003	8.0755
Total	**0.9065**	**1.2439**	**3.9277**	**8.8000e-003**	**0.5172**	**0.0263**	**0.5435**	**0.1390**	**0.0252**	**0.1641**	**32.7386**	**990.8680**	**1,023.6065**	**2.0241**	**8.8200e-003**	**1,068.8459**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2011	1/4/2011	5	70	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Excavators	0	0.00	162	0.38
Demolition	Rubber Tired Dozers	0	0.00	255	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3328	1.0857	3.7937	7.8500e-003	0.5172	0.0143	0.5314	0.1390	0.0131	0.1521	0.0000	613.6565	613.6565	0.0234	0.0000	614.1468
Unmitigated	0.3328	1.0857	3.7937	7.8500e-003	0.5172	0.0143	0.5314	0.1390	0.0131	0.1521	0.0000	613.6565	613.6565	0.0234	0.0000	614.1468

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	473.63	473.63	473.63	1,382,754	1,382,754
Total	473.63	473.63	473.63	1,382,754	1,382,754

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.541334	0.061893	0.168156	0.111955	0.031019	0.004607	0.019268	0.049011	0.001782	0.003693	0.005649	0.000207	0.001427

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	201.3571	201.3571	0.0137	2.9100e-003	202.5455
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	201.3571	201.3571	0.0137	2.9100e-003	202.5455
NaturalGas Mitigated	0.0174	0.1582	0.1328	9.5000e-004		0.0120	0.0120		0.0120	0.0120	0.0000	172.1612	172.1612	3.3000e-003	3.1600e-003	173.2089
NaturalGas Unmitigated	0.0174	0.1582	0.1328	9.5000e-004		0.0120	0.0120		0.0120	0.0120	0.0000	172.1612	172.1612	3.3000e-003	3.1600e-003	173.2089

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					

General Light Industry	3.22618e+006	0.0174	0.1582	0.1328	9.5000e-004		0.0120	0.0120		0.0120	0.0120	0.0000	172.1612	172.1612	3.3000e-003	3.1600e-003	173.2089
Total		**0.0174**	**0.1582**	**0.1328**	**9.5000e-004**		**0.0120**	**0.0120**		**0.0120**	**0.0120**	**0.0000**	**172.1612**	**172.1612**	**3.3000e-003**	**3.1600e-003**	**173.2089**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	3.22618e+006	0.0174	0.1582	0.1328	9.5000e-004		0.0120	0.0120		0.0120	0.0120	0.0000	172.1612	172.1612	3.3000e-003	3.1600e-003	173.2089
Total		**0.0174**	**0.1582**	**0.1328**	**9.5000e-004**		**0.0120**	**0.0120**		**0.0120**	**0.0120**	**0.0000**	**172.1612**	**172.1612**	**3.3000e-003**	**3.1600e-003**	**173.2089**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.03896e+006	201.3571	0.0137	2.9100e-003	202.5455
Total		**201.3571**	**0.0137**	**2.9100e-003**	**202.5455**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.03896e+006	201.3571	0.0137	2.9100e-003	202.5455
Total		**201.3571**	**0.0137**	**2.9100e-003**	**202.5455**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5563	1.0000e-005	1.1800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2400e-003	2.2400e-003	1.0000e-005	0.0000	2.3800e-003
Unmitigated	0.5563	1.0000e-005	1.1800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2400e-003	2.2400e-003	1.0000e-005	0.0000	2.3800e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0655					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4907					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-004	1.0000e-005	1.1800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2400e-003	2.2400e-003	1.0000e-005	0.0000	2.3800e-003
Total	**0.5563**	**1.0000e-005**	**1.1800e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.2400e-003**	**2.2400e-003**	**1.0000e-005**	**0.0000**	**2.3800e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Consumer Products	0.4907					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-004	1.0000e-005	1.1800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2400e-003	2.2400e-003	1.0000e-005	0.0000	2.3800e-003
Architectural Coating	0.0655					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.5563**	**1.0000e-005**	**1.1800e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.2400e-003**	**2.2400e-003**	**1.0000e-005**	**0.0000**	**2.3800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.8076	0.1149	2.7600e-003	8.0755

Unmitigated	4.8076	0.1149	2.7600e-003	8.0773

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	3.51963 / 0	4.8076	0.1149	2.7600e-003	8.0773
Total		**4.8076**	**0.1149**	**2.7600e-003**	**8.0773**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	3.51963 / 0	4.8076	0.1149	2.7600e-003	8.0755
Total		**4.8076**	**0.1149**	**2.7600e-003**	**8.0755**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	31.6219	1.8688	0.0000	70.8668
Mitigated	31.6219	1.8688	0.0000	70.8668

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	155.78	31.6219	1.8688	0.0000	70.8668
Total		**31.6219**	**1.8688**	**0.0000**	**70.8668**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e

Land Use	tons	MT/yr			
General Light Industry	155.78	31.6219	1.8688	0.0000	70.8668
Total		**31.6219**	**1.8688**	**0.0000**	**70.8668**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Attachment B
Traffic Impact Analysis

Traffic Impact Analysis

Hayward Maintenance Complex Refinements Project

Prepared by:

AECOM

100 West San Fernando Street, Suite 200
San Jose, CA 95113

November 11, 2016

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FIGURES

TABLES

APPENDICES

I PROJECT DESCRIPTION

The existing BART Hayward Yard is one of four BART maintenance facilities serving the BART system. Over the next 30 years, BART will require additional vehicles to meet future demand associated with regional population growth, system expansions for the Warm Springs and Silicon Valley/San Jose Extension projects, and additional riders from the Oakland Airport Connector, and eBART projects. Accordingly, BART requires expanded maintenance and storage facilities to serve the expanded fleet. The proposed Hayward Maintenance Complex (HMC) would consist of acquisition and improvement to three properties on the west side of the existing Hayward Yard and the construction of additional storage tracks for a maximum of 250 vehicles on undeveloped BART property on the east side of the Hayward Yard.

An Initial Study/Mitigated Negative Declaration (IS/MND) was conducted for the HMC Project in May 2011. In March 2013, an Addendum to the 2011 IS/MND was prepared to evaluate proposed modifications to the previously-approved HMC. A second Addendum to the 2011 IS/MND is currently being prepared to evaluate additional proposed modifications, together which would result in an increase in the projected number of employees at the HMC.

The purpose of this traffic analysis is to determine if there are traffic impacts resulting from the proposed increase in the number of employees at the BART Hayward Maintenance HMC. This analysis updates the existing conditions from the prior IS/MND to 2016 and compares these conditions with the new anticipated employee numbers to determine if significant impacts would result.

II TRAFFIC ANALYSIS METHODOLOGY

The project site is bounded by Huntwood Avenue to the west, Industrial Parkway W to the north, Whipple Road to the south, and Mission Boulevard (State Route 238) to the east. There are two access points to the site, one from Sandoval Way and the other from Whipple Road. Figure 1 presents the project location. The project site currently houses the BART Hayward Yard and the HMC that is under construction.

Study Intersections

The study analyzes four study intersections (see Figure 1):

1. Huntwood Avenue / Industrial Parkway W (Hayward)
2. Huntwood Avenue / Sandoval Way (Hayward)
3. I-880 NB Ramps / Whipple Road / Industrial Parkway SW (Caltrans intersection in Hayward)
4. Whipple Road / Mission Boulevard (Caltrans intersection in Union City)

5. 

6. Figure 1 – Project Area and Study Intersection

Intersection turning movement volumes at the four study intersections were collected in October 2016 during the following time periods:

- AM peak hour – 7:00 a.m. to 9:00 a.m.
- PM peak hour – 4:00 p.m. to 6:00 p.m.

In addition, 24-hour volume counts were collected at the two driveways to the project site (Sandoval Way and Whipple Road) in October 2016.

Analysis Scenarios

Traffic volumes were projected and impacts were assessed for the following scenarios during the AM and PM peak hours:

1. Existing Conditions – Traffic conditions were evaluated based on existing lane geometries, traffic controls, and traffic volumes; and
2. Existing plus Project Conditions – Traffic conditions were evaluated with the proposed employee trips added to existing traffic volumes.

Evaluation Criteria

The evaluation of the project's traffic impacts is based on changes to the study area intersection in terms of their level of congestion. Specifically, a Level of Service (LOS) analysis was performed using Synchro 9.0 software package based on the 2016 traffic data collected by AECOM and according to the methodologies outlined in the Highway Capacity Manual (HCM 2010). LOS measures traffic operating conditions, based on ratings from LOS A to LOS F, where LOS A signifies free-flowing conditions and minimal delays at the intersections and LOS F signifies crowded, congested conditions and motorists often needing to wait through a signal phase. Table 1 presents a description of LOS and provides associated delays with each LOS letter grade for signalized intersections. The LOS and delays were compared between the no project and with project conditions.

IV EXISTING CONDITIONS

Existing lane geometries and traffic controls for the four study intersections are illustrated in Figure 2. Figure 2 also includes the turning movement volumes at the study intersections. Detailed counts collected for the AM and PM peak periods are provided in Appendix A.

Three of the study area intersections (Intersections #2, #3, and #4) operate within acceptable levels of service. For Intersection #1, the LOS during the AM peak hour is within acceptable levels, but during the PM peak hour, it operates unacceptably at LOS F.

Table 1 – Signalized Intersection LOS Thresholds		
Level of Service	**Description**	**Delay (sec/veh)**
A	Free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream.	≤ 10
B	Reasonably unimpeded operation. The ability to maneuver with the traffic stream is only slightly restricted.	>10-20
C	Stable operation. The ability to maneuver and change lanes at mid-segment locations may be more restricted than at LOS B.	>20-35
D	Less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed.	>35-55
E	Unstable operation and significant delay	>55-80
F	Flow at extremely low speed.	>80
Source: Highway Capacity Manual (Transportation Research Board, 2010)		

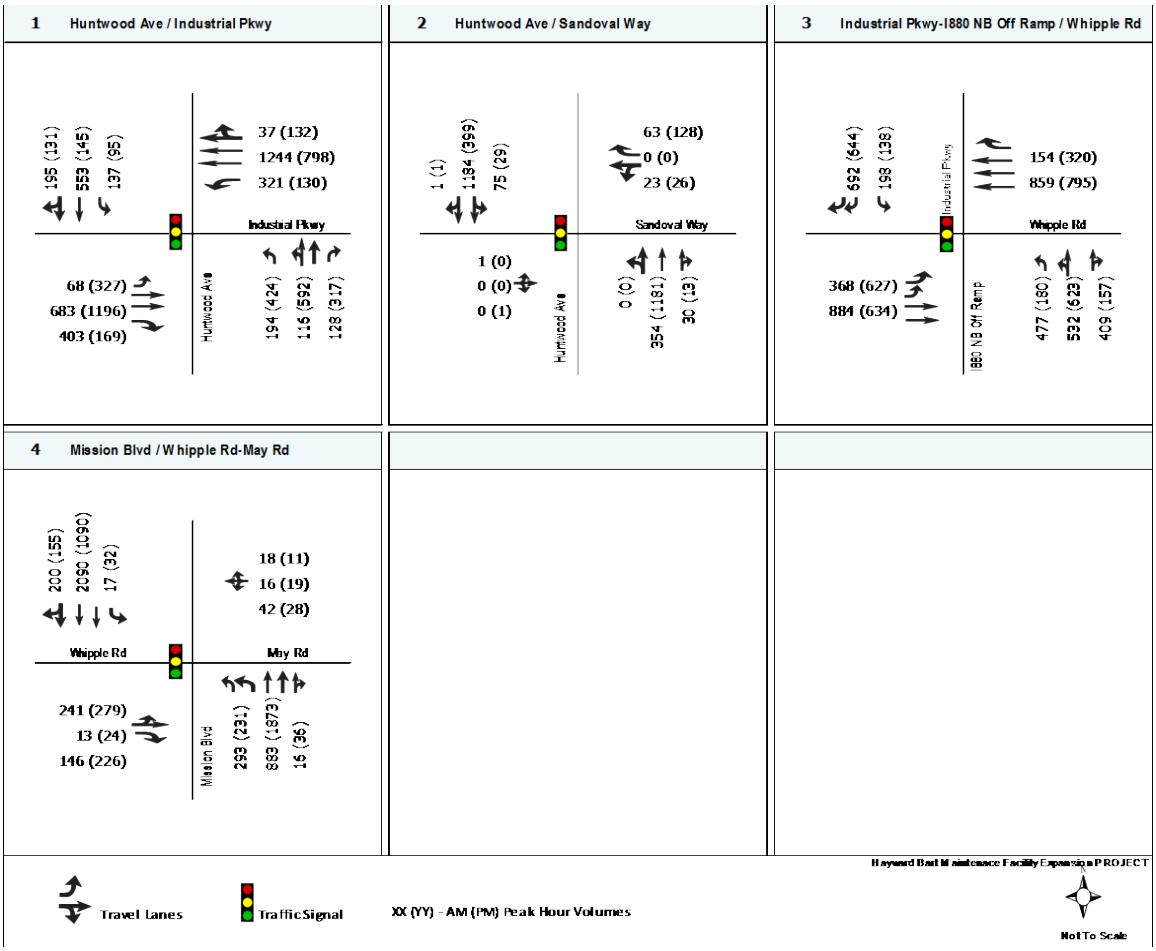


Figure 2 – Existing Lane Geometry and Peak Hour Turning Movement Volumes

V PROJECT CONDITION IMPACT ANALYSIS

There are currently 280 employees at the Hayward Yard. The anticipated number of employees at the HMC when it is fully implemented is presented in Table 2. Of the projected 665 employees anticipated to be at the HMC, 135 are current employees at the adjacent Hayward Yard that will transfer to the HMC. As such, the net new number of employees is 530.

Table 2 – Net New BART Employees

Facility / Building	Number of Employees
New Overhaul Shop	50
Component Repair Shop	150
Central Warehouse	43
M&E	402
East side storage tracks	20
Total	665
Relocated Employees from Existing Hayward Yard	(135)
Net New Employees	**530**

Trip Generation

Using the same daily trip generation rate of 2.6 trip/employee calculated in the 2011 IS/MND, the estimated new project trips for the net new 530 employees projected at the HMC is 1,378 daily trips. The 2011 IS/MND report estimated that 6.6% and 3.3% of the daily trips are AM peak and PM peak hour trips, respectively. The in/out split during the AM and PM peak hour and the distribution of trips between the two site access points (Sandoval Way and Whipple Road) are also based on the 2011 document. This analysis does not include the 20% trip reduction that had been attributed to the BART Programmed Station Stop that was included in the 2011 report. This Programmed Station Stop is no longer proposed, so the trip generation reported here excludes this improvement which had resulted in fewer trips per day.

Table 3 presents the trip generation calculation, and Figure 3 illustrates the expected project trips at each of the study intersections.

Table 3 – Project Trip Generation							
	Number of Employees	**Daily Vehicle Trip Rate**	**Daily Vehicle -Trips**	**AM Peak Hour - % of Daily trips**	**AM Peak Hr Trips**	**PM Peak Hour - % of Daily trips**	**PM Peak Hr Trips**
Existing							
BART Hayward Yard[1]	280	2.6/ employee	726	6.6%	48	3.3%	24
Proposed							
BART Hayward Yard	145	2.6/ employee	377	6.6%	25	3.3%	13
BART HMC	665		1729		114		57
Total	*810*	--	*2106*		139		70
Net Change in Vehicle Trips			**1,378**		**91**		**46**
AM peak in = 73%, out = 27% PM peak in = 16%, out = 84% Sandoval Way Access distribution = 73% Whipple Road Access distribution = 27%							

Note:
[1] Existing information for employee number, trip rate, peak hour %, vehicular distribution and split were obtained from 2011 IS/MND document. The shift of 135 employees to the HMC under the proposed project is reflected below.

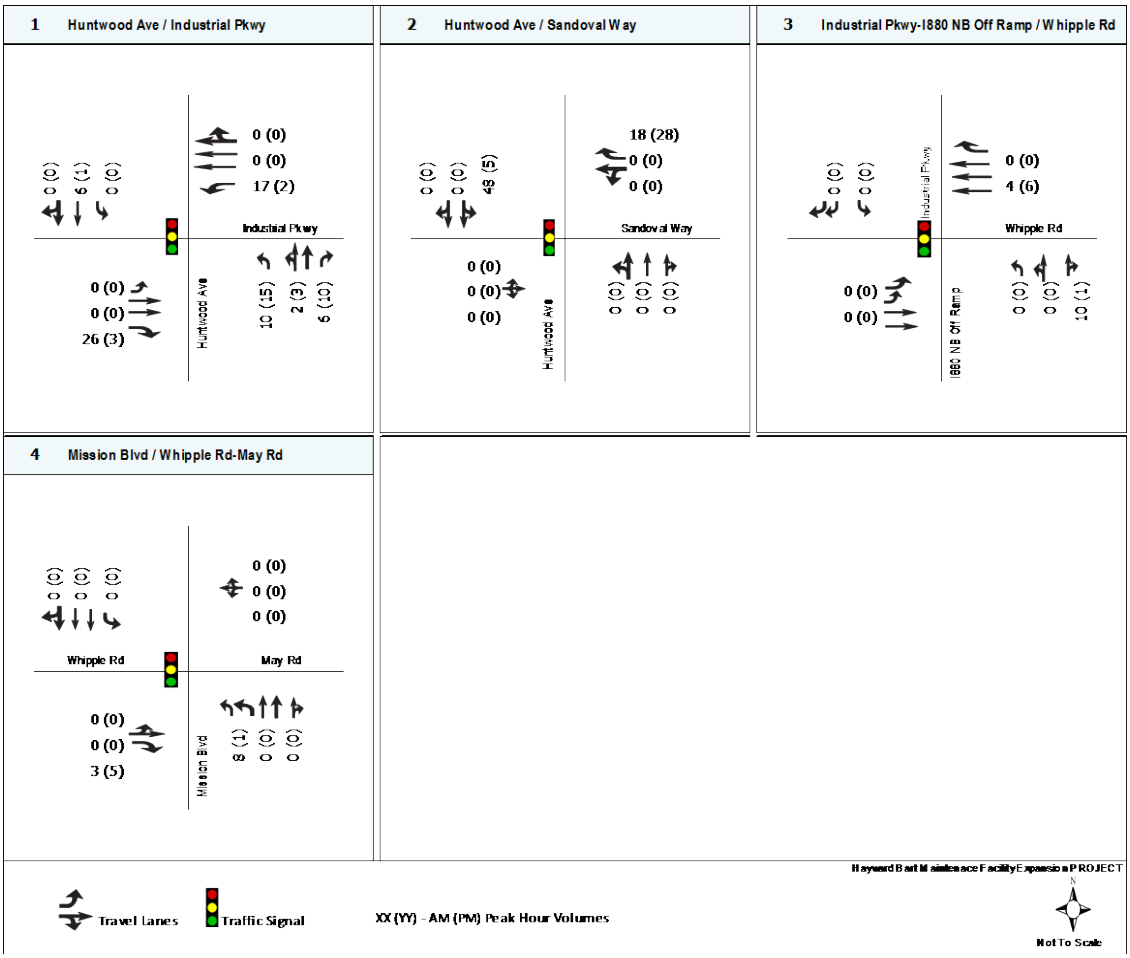


Figure 3 – Project Turning Movement Volumes

Significant Impact Thresholds

Two of the four study intersections (Intersections #1 and #2) are operated and maintained by the City of Hayward, and the city's significance thresholds have been used for these intersections in this assessment. For the other two intersections, which are owned and maintained by Caltrans, Caltrans recommends using the significant impact threshold of the jurisdiction where the intersection is located. As a result, the applicable threshold for Intersection #3 (I-880 NB Ramps / Whipple Road / Industrial Parkway SW) is that of the City of Hayward, and the applicable threshold for Intersection #4 (Whipple Road / Mission Boulevard) is that of Union City.

According to the City of Hayward guidelines for signalized intersections,

- LOS E is treated as an acceptable LOS. If the project causes an intersection operating at LOS E or better to fall below LOS E, then the project would result in a significant impact.
- For an intersection already operating at unacceptable LOS F, if the project increases the average control delay by five (5) seconds or more, the project would result in a significant impact.

According to the City of Union City guidelines for signalized intersections,

- LOS D is treated as an acceptable LOS. If the project causes an intersection operating at LOS D or better to fall below LOS D, then the project would result in a significant impact.

Impact Analysis

As described earlier under "Traffic Analysis Methodology," project impacts are determined by comparing the 'with' and 'without' project intersection LOS and delay.

Table 4 shows that three study intersections (Intersections #2, #3, and #4) are expected to operate within acceptable levels of service with or without the project. For Intersection #1, the LOS during the AM peak hour is within acceptable levels. During the PM peak hour, however, the intersection currently operates at an unacceptable LOS F and would remain at LOS F with the project. The increase in average delay under project conditions is less than five seconds, so that the project impact would be less than significant, based on the City of Hayward significance criteria. Detailed level of service calculation sheets for existing conditions are provided in Appendix B and those for 'with project' conditions are provided in Appendix C.

In addition to four signalized study intersections, the unsignalized project driveway at Whipple Road was evaluated as part of the analysis. Unlike signalized intersections, the analysis for unsignalized intersections examines the LOS and delay for the worst approach into the intersection. Currently, the worst approach operates at LOS F and LOS E during the

Table 4 – Project LOS and Delay Comparison							
Intersection		**Peak Hour**	**No Project**		**With Project**		
			LOS	**Avg Delay (sec)**	**LOS**	**Avg Delay (sec)**	**Δ in Avg delay[1] (sec)**
1	Huntwood Avenue / Industrial Parkway W[2]	AM	E	69.7	E	73.2	n/a
		PM	**F**	**82.9**	**F**	**82.4**	-0.5
2	Huntwood Avenue / Sandoval Way	AM	C	26.3	C	27.5	n/a
		PM	C	29.7	C	30.1	
3	I-880 NB Ramps / Whipple Road / Industrial Parkway	AM	E	73.5	E	75.0	n/a
		PM	D	47.3	D	47.3	
4	Whipple Road / Mission Boulevard	AM	D	45.2	D	45.7	n/a
		PM	C	34.3	C	34.3	
5	Whipple Road / BART Access Road[3]	AM	**F**	**112.7**	**F**	**134.4**	21.7
		PM	**E**	**47.0**	**E**	**49.2**	2.2

Source: AECOM 2016

Bold indicates LOS at unacceptable levels

1. Change in average delay only calculated for intersection at unacceptable level under 'with project' conditions to determine project impact.
2. Calculated average delay under 'with project' condition decreases as project trips are added to non-critical movements, resulting in more vehicles being able to get through the intersection. This does not reflect the actual delay experienced by drivers.
3. Unsignalized access located in Union City: acceptable LOS is D or better. Worst approach LOS and delay reported for unsignalized intersection.

AM and PM peak hour, respectively. With the project, the LOS of the worst approach during the AM and PM peak hours would remain the same as the LOS without the project.

The worst approach for this access is in the southbound direction, which is the route used by vehicles exiting the project site. The main traffic flow on Whipple Road continues to operate at LOS A, even with the project. The high delay reported at this project driveway would affect only vehicles leaving the project site and not the non-project traffic. Any queues of cars trying to enter the intersection would be within the project site and would not impede the traffic flow along Whipple Road. It is therefore reasonable to conclude that the project would cause a less-than-significant impact at the Whipple Road access during the peak hour, because Whipple Road and the driveway across from the access would operate at an acceptable LOS.

VI TRANSIT, PEDESTRIAN AND BIKE IMPACTS

The nearest transit facility to the HMC is a pair of bus stops along Huntwood Avenue, near the intersection with Sandoval Way. Line 85 of AC Transit serves this pair of stops which connects to the nearest BART station – South Hayward. Line 85 also serves a pair of bus stops near the intersection of Huntwood Avenue / Whipple Road. Additional bus services, Line 99 and Line 801 (night service), can be found along Mission Boulevard which is east of

the HMC. These services have stops along Mission Boulevard, between Industrial Parkway and Whipple Road. The current number of BART employees taking transit to the Hayward Yard is low and this trend is expected to continue in the future when the project is completed. There is sufficient capacity on the transit services to meet the needs of the expected increase in employees. As such, the project would have a less-than-significant transit impact.

In the HMC vicinity, there is a separated Class I bikeway along Industrial Parkway W and Mission Boulevard. A Class II bike lane is found along Huntwood Avenue and along a short section of Whipple Road, between Railroad Avenue and A Street. The current trend of low number of employees cycling to work is expected to continue into the future. In addition, the peak hour intersection counts indicate that the bike facilities in the project vicinity have sufficient capacity to accommodate the number of peak hour cyclists, including any increase due to the project in the future. As such, the project would have a less-than-significant impact on bicycle facilities.

For pedestrians, there is sidewalk along one or both sides of Whipple Road between Mission Boulevard and I-880. Although there is no sidewalk along Sandoval Way, the signalized intersections of Huntwood Avenue / Sandoval Way and Huntwood Avenue / Industrial Parkway W provide crosswalks at all approaches. Huntwood Avenue has sidewalk along both sides, and Industrial Parkway W has a sidewalk on the north side. Based on the peak hour intersection counts obtained, the current pedestrian facilities in the project vicinity have sufficient capacity to accommodate the expected increase in usage due to the additional employees. As such, the project would have a less-than-significant pedestrian impact.

VII MITIGATION MEASURES

The project would have a less-than-significant impact on all the study intersections. Therefore, no mitigation measures are necessary for the four study intersections. In addition, no new or additional mitigations are needed for the project site access at Whipple Road because the project's impact at this location is less than significant as well. Mitigation measure TR-2 (Reconfiguration of Southbound Approach of the West Side Expansion Area Driveway) presented in the 2011 IS/MND document for improving the sight distance at the Whipple access would allow drivers to exit the project site onto Whipple Road.

Similarly, no mitigation measures are needed for the transit, bike and pedestrian facilities serving the project vicinity.

No new or additional mitigation measures are proposed as a result of this analysis.

VIII CONCLUSION

This analysis concludes that all study intersections, including the project access at Whipple Road, would experience less-than-significant impacts as a result of the additional employees

associated with the proposed modifications at the HMC. The proposed modifications would also have less-than-significant impacts on transit, bike and pedestrian facilities in the project vicinity. There are no new significant impacts or substantially more severe significant impacts due to the increase in employee numbers at the HMC. Therefore, no new or additional mitigation measures are required.

APPENDIX A
DETAILED INTERSECTION TURNING MOVEMENT VOLUMES

BAYMETRICS

VEHICLE CLASSIFICATION SUMMARY

PROJECT:	**TRAFFIC COUNTS IN HAYWARD**	**SURVEY DATE:**	**10/12/2016** **SURVEY DAY:** **Wednesday**
LOCATION	**A1. BART ACCESS ROAD (FROM SANDOVAL WAY)**	**SURVEY TIME:**	**12:00 AM TO 12:00 AM**
JURISDICTION:	**HAYWARD**		**FILE:** **3610088**

S U M M A R Y

DIRECTION:		NORTHBOUND								SOUTHBOUND							
CLASSIFICATION		**MOTO**	**AUTO**	**2-AXLE**	**3-AXLE**	**4-AXLE**	**5-AXLE**	**>5-AXLE**	**VOLUME**	**MOTO**	**AUTO**	**2-AXLE**	**3-AXLE**	**4-AXLE**	**5-AXLE**	**>5-AXLE**	**VOLUME**
PEAK	**AM**	0	25	0	0	0	0	0	25	0	138	0	2	1	0	0	141
		0.00	100.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	97.87	0.00	1.42	0.71	0.00	0.00	100.00
HOUR	**MD**	0	40	1	0	1	1	0	43	0	45	0	0	0	0	0	45
		0.00	93.02	2.33	0.00	2.33	2.33	0.00	100.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	100.00
	PM	1	150	1	1	0	1	0	154	0	47	0	0	0	0	0	47
		0.65	97.40	0.65	0.65	0.00	0.65	0.00	100.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	100.00
	EVEN	0	37	0	0	0	0	0	37	0	16	0	0	0	1	0	17
		0.00	100.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	94.12	0.00	0.00	0.00	5.88	0.00	100.00

		NORTHBOUND							TOTAL	SOUTHBOUND							TOTAL
From	**To**	MOTO	AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE	>5-AXLE	VOLUMES	MOTO	AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE	>5-AXLE	VOLUMES
						15 MIN			***TOTALS***								
12:00 AM	12:15 AM	0	4	0	0	0	0	0	***4***	0	2	0	0	0	0	0	***2***
12:15 AM	12:30 AM	0	2	0	0	0	0	0	***2***	0	0	0	0	0	0	0	***0***
12:30 AM	12:45 AM	0	4	0	0	0	0	0	***4***	0	0	0	0	0	0	0	***0***
12:45 AM	01:00 AM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
01:00 AM	01:15 AM	0	2	0	0	0	0	0	***2***	0	0	0	0	0	0	0	***0***
01:15 AM	01:30 AM	0	1	0	0	0	0	0	***1***	0	1	0	0	0	0	0	***1***
01:30 AM	01:45 AM	0	2	0	0	0	0	0	***2***	0	0	0	0	0	0	0	***0***
01:45 AM	02:00 AM	0	3	0	0	0	0	0	***3***	0	0	0	0	0	0	0	***0***
02:00 AM	02:15 AM	0	11	0	0	0	0	0	***11***	0	0	0	0	0	0	0	***0***
02:15 AM	02:30 AM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
02:30 AM	02:45 AM	0	0	0	0	0	0	0	***0***	0	1	0	0	0	0	0	***1***
02:45 AM	03:00 AM	0	2	0	0	0	0	0	***2***	0	1	0	0	0	0	0	***1***
03:00 AM	03:15 AM	0	1	0	0	0	0	0	***1***	0	3	0	0	0	0	0	***3***
03:15 AM	03:30 AM	0	0	0	0	0	0	0	***0***	0	4	0	0	0	0	0	***4***
03:30 AM	03:45 AM	0	1	0	0	0	0	0	***1***	0	3	0	0	0	0	0	***3***
03:45 AM	04:00 AM	0	0	0	0	0	0	0	***0***	0	4	0	0	0	0	0	***4***
04:00 AM	04:15 AM	0	3	0	0	0	0	0	***3***	0	2	0	0	0	0	0	***2***
04:15 AM	04:30 AM	0	0	0	0	0	0	0	***0***	0	3	0	0	0	0	0	***3***
04:30 AM	04:45 AM	0	0	0	0	0	0	0	***0***	0	7	0	0	0	0	0	***7***
04:45 AM	05:00 AM	0	3	0	0	0	0	0	***3***	0	7	0	0	0	0	0	***7***
05:00 AM	05:15 AM	0	4	0	0	0	0	0	***4***	0	6	0	0	0	0	0	***6***
05:15 AM	05:30 AM	0	0	0	0	0	0	0	***0***	0	12	0	0	0	0	0	***12***
05:30 AM	05:45 AM	0	1	0	0	1	0	0	***2***	0	22	0	0	1	0	0	***23***
05:45 AM	06:00 AM	0	2	0	0	0	0	0	***2***	0	35	0	0	0	0	0	***35***
06:00 AM	06:15 AM	0	5	0	0	0	0	0	***5***	0	27	0	2	1	0	0	***30***
06:15 AM	06:30 AM	0	4	0	0	0	0	0	***4***	0	29	0	0	0	0	0	***29***
06:30 AM	06:45 AM	0	5	0	0	0	0	0	***5***	0	47	0	0	0	0	0	***47***
06:45 AM	07:00 AM	0	2	0	0	0	0	0	***2***	0	31	0	0	0	0	0	***31***
07:00 AM	07:15 AM	0	14	0	0	0	0	0	***14***	0	12	0	1	0	0	0	***13***
07:15 AM	07:30 AM	0	3	0	0	0	0	0	***3***	0	3	0	0	0	0	0	***3***
07:30 AM	07:45 AM	0	2	0	1	0	1	0	***4***	0	3	0	0	0	0	0	***3***
07:45 AM	08:00 AM	0	3	0	0	0	0	0	***3***	0	5	0	0	0	0	0	***5***
08:00 AM	08:15 AM	0	8	0	0	0	0	0	***8***	0	6	0	0	0	0	0	***6***
08:15 AM	08:30 AM	0	3	0	0	0	1	0	***4***	0	5	0	0	0	0	0	***5***
08:30 AM	08:45 AM	0	2	1	0	0	0	0	***3***	0	7	0	0	0	0	0	***7***
08:45 AM	09:00 AM	0	1	0	0	0	1	0	***2***	0	2	0	0	0	0	0	***2***
09:00 AM	09:15 AM	0	5	0	0	0	0	0	***5***	0	6	0	0	0	0	0	***6***
09:15 AM	09:30 AM	0	4	0	0	0	1	0	***5***	0	3	0	0	0	0	0	***3***
09:30 AM	09:45 AM	0	6	0	0	0	0	0	***6***	0	6	0	0	0	0	0	***6***
09:45 AM	10:00 AM	0	3	0	0	0	0	0	***3***	0	3	1	0	0	0	0	***4***
10:00 AM	10:15 AM	0	5	0	0	0	1	0	***6***	0	3	0	0	0	0	0	***3***
10:15 AM	10:30 AM	0	4	0	0	0	1	0	***5***	0	6	0	0	0	0	0	***6***
10:30 AM	10:45 AM	0	4	0	0	0	0	0	***4***	0	3	0	0	0	0	0	***3***
10:45 AM	11:00 AM	0	4	0	0	0	1	0	***5***	0	8	0	0	0	2	0	***10***
11:00 AM	11:15 AM	0	11	0	0	0	0	0	***11***	0	1	0	0	0	1	0	***2***
11:15 AM	11:30 AM	0	7	0	0	0	2	0	***9***	0	6	1	0	0	0	0	***7***
11:30 AM	11:45 AM	0	8	0	0	0	1	0	***9***	0	9	0	0	1	0	0	***10***
11:45 AM	12:00 PM	0	10	0	0	0	0	0	***10***	0	9	1	0	0	0	0	***10***
12:00 PM	12:15 PM	0	9	0	0	1	0	0	***10***	0	6	0	0	0	0	0	***6***
12:15 PM	12:30 PM	0	6	0	0	1	0	0	***7***	0	11	0	0	0	0	0	***11***
12:30 PM	12:45 PM	0	4	0	0	0	0	0	***4***	0	6	0	0	0	0	0	***6***
12:45 PM	01:00 PM	0	8	0	0	0	0	0	***8***	0	6	0	0	0	0	0	***6***
01:00 PM	01:15 PM	0	8	0	0	0	0	0	***8***	0	3	0	0	0	0	0	***3***
01:15 PM	01:30 PM	0	5	0	0	0	1	0	***6***	0	4	0	0	0	0	0	***4***
01:30 PM	01:45 PM	0	0	0	0	0	0	0	***0***	0	11	0	0	0	0	0	***11***
01:45 PM	02:00 PM	0	5	0	0	0	0	0	***5***	0	9	0	0	0	0	0	***9***
02:00 PM	02:15 PM	0	21	1	0	0	0	0	***22***	0	7	0	0	0	0	0	***7***
02:15 PM	02:30 PM	0	5	0	0	1	1	0	***7***	0	9	0	0	0	0	0	***9***
02:30 PM	02:45 PM	0	9	0	0	0	0	0	***9***	0	20	0	0	0	0	0	***20***
02:45 PM	03:00 PM	0	16	0	0	0	1	0	***17***	0	11	0	0	0	0	0	***11***
03:00 PM	03:15 PM	1	90	1	1	0	0	0	***93***	0	2	0	0	0	0	0	***2***
03:15 PM	03:30 PM	0	18	0	0	0	0	0	***18***	0	4	0	0	0	0	0	***4***
03:30 PM	03:45 PM	0	26	0	0	0	0	0	***26***	0	6	0	0	0	0	0	***6***
03:45 PM	04:00 PM	0	6	0	0	0	0	0	***6***	0	8	0	0	0	0	0	***8***
04:00 PM	04:15 PM	0	23	0	0	0	0	0	***23***	0	3	0	0	0	0	0	***3***
04:15 PM	04:30 PM	0	6	0	0	0	0	0	***6***	0	1	0	0	0	0	0	***1***
04:30 PM	04:45 PM	0	5	1	0	0	0	0	***6***	0	2	0	0	0	0	0	***2***
04:45 PM	05:00 PM	0	8	0	0	0	0	0	***8***	0	0	0	0	0	0	0	***0***
05:00 PM	05:15 PM	0	6	0	0	0	0	0	***6***	0	0	0	0	0	0	0	***0***
05:15 PM	05:30 PM	0	6	0	0	0	0	0	***6***	0	2	0	0	0	0	0	***2***
05:30 PM	05:45 PM	0	4	0	1	0	0	0	***5***	0	1	0	1	0	0	0	***2***
05:45 PM	06:00 PM	0	4	0	0	0	0	0	***4***	0	1	0	0	0	0	0	***1***
06:00 PM	06:15 PM	0	9	0	0	0	0	0	***9***	0	3	0	0	0	0	0	***3***
06:15 PM	06:30 PM	0	6	0	0	0	0	0	***6***	0	3	1	0	0	0	0	***4***
06:30 PM	06:45 PM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
06:45 PM	07:00 PM	0	16	0	0	0	0	0	***16***	0	5	0	0	0	0	0	***5***
07:00 PM	07:15 PM	0	3	0	0	0	0	0	***3***	0	1	0	0	0	0	0	***1***
07:15 PM	07:30 PM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
07:30 PM	07:45 PM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
07:45 PM	08:00 PM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
08:00 PM	08:15 PM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
08:15 PM	08:30 PM	0	4	0	0	0	0	0	***4***	0	1	0	0	0	0	0	***1***
08:30 PM	08:45 PM	0	9	0	0	0	0	0	***9***	0	4	0	0	0	0	0	***4***
08:45 PM	09:00 PM	0	1	0	0	0	0	0	***1***	0	4	0	0	0	0	0	***4***
09:00 PM	09:15 PM	0	4	0	0	0	0	0	***4***	0	0	0	0	0	0	0	***0***
09:15 PM	09:30 PM	0	1	0	0	0	0	0	***1***	0	3	0	0	0	0	0	***3***
09:30 PM	09:45 PM	0	2	0	0	0	0	0	***2***	0	3	0	0	0	0	0	***3***
09:45 PM	10:00 PM	0	1	0	0	0	0	0	***1***	0	1	0	0	0	0	0	***1***
10:00 PM	10:15 PM	0	5	0	0	0	0	0	***5***	0	1	0	0	0	1	0	***2***
10:15 PM	10:30 PM	0	1	0	0	0	0	0	***1***	0	1	0	0	0	0	0	***1***
10:30 PM	10:45 PM	0	1	0	0	0	0	0	***1***	0	7	0	0	0	0	0	***7***
10:45 PM	11:00 PM	0	0	0	0	0	0	0	***0***	0	7	0	0	0	0	0	***7***
11:00 PM	11:15 PM	0	34	0	0	0	0	0	***34***	0	1	0	0	0	0	0	***1***
11:15 PM	11:30 PM	0	2	0	0	0	0	0	***2***	0	0	0	0	0	0	0	***0***
11:30 PM	11:45 PM	0	0	0	0	0	0	0	***0***	0	4	0	0	0	0	0	***4***
11:45 PM	12:00 AM	0	0	0	0	0	0	0	***0***	0	2	0	0	0	0	0	***2***

CLASSIFICATION	**MOTO**	**AUTO**	**2-AXLE**	**3-AXLE**	**4-AXLE**	**5-AXLE**	**>5-AXLE**	**VOLUME**	**MOTO**	**AUTO**	**2-AXLE**	**3-AXLE**	**4-AXLE**	**5-AXLE**	**>5-AXLE**	**VOLUME**

DAILY VOLUME	1	566	4	3	4	13	0	591		0	537	4	4	3	4	0	552
PERCENTAGE	0.17	95.77	0.68	0.51	0.68	2.20	0.00	100		0.00	97.28	0.72	0.72	0.54	0.72	0.00	100

Telephone :(510) 232-1271 *Fax:(510)232-1272*

	NORTHBOUND							TOTAL		SOUTHBOUND							TOTAL
From To	MOTO	AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE	>5-AXLE	VOLUMES		MOTO	AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE	>5-AXLE	VOLUMES
	HOURLY									***TOTALS***							
12:00 AM ----- 01:00 AM	0	10	0	0	0	0	0	***10***		0	2	0	0	0	0	0	***2***
12:15 AM ----- 01:15 AM	0	8	0	0	0	0	0	***8***		0	0	0	0	0	0	0	***0***
12:30 AM ----- 01:30 AM	0	7	0	0	0	0	0	***7***		0	1	0	0	0	0	0	***1***
12:45 AM ----- 01:45 AM	0	5	0	0	0	0	0	***5***		0	1	0	0	0	0	0	***1***
01:00 AM ----- 02:00 AM	0	8	0	0	0	0	0	***8***		0	1	0	0	0	0	0	***1***
01:15 AM ----- 02:15 AM	0	17	0	0	0	0	0	***17***		0	1	0	0	0	0	0	***1***
01:30 AM ----- 02:30 AM	0	16	0	0	0	0	0	***16***		0	0	0	0	0	0	0	***0***
01:45 AM ----- 02:45 AM	0	14	0	0	0	0	0	***14***		0	1	0	0	0	0	0	***1***
02:00 AM ----- 03:00 AM	0	13	0	0	0	0	0	***13***		0	2	0	0	0	0	0	***2***
02:15 AM ----- 03:15 AM	0	3	0	0	0	0	0	***3***		0	5	0	0	0	0	0	***5***
02:30 AM ----- 03:30 AM	0	3	0	0	0	0	0	***3***		0	9	0	0	0	0	0	***9***
02:45 AM ----- 03:45 AM	0	4	0	0	0	0	0	***4***		0	11	0	0	0	0	0	***11***
03:00 AM ----- 04:00 AM	0	2	0	0	0	0	0	***2***		0	14	0	0	0	0	0	***14***
03:15 AM ----- 04:15 AM	0	4	0	0	0	0	0	***4***		0	13	0	0	0	0	0	***13***
03:30 AM ----- 04:30 AM	0	4	0	0	0	0	0	***4***		0	12	0	0	0	0	0	***12***
03:45 AM ----- 04:45 AM	0	3	0	0	0	0	0	***3***		0	16	0	0	0	0	0	***16***
04:00 AM ----- 05:00 AM	0	6	0	0	0	0	0	***6***		0	19	0	0	0	0	0	***19***
04:15 AM ----- 05:15 AM	0	7	0	0	0	0	0	***7***		0	23	0	0	0	0	0	***23***
04:30 AM ----- 05:30 AM	0	7	0	0	0	0	0	***7***		0	32	0	0	0	0	0	***32***
04:45 AM ----- 05:45 AM	0	8	0	0	1	0	0	***9***		0	47	0	0	1	0	0	***48***
05:00 AM ----- 06:00 AM	0	7	0	0	1	0	0	***8***		0	75	0	0	1	0	0	***76***
05:15 AM ----- 06:15 AM	0	8	0	0	1	0	0	***9***		0	96	0	2	2	0	0	***100***
05:30 AM ----- 06:30 AM	0	12	0	0	1	0	0	***13***		0	113	0	2	2	0	0	***117***
05:45 AM ----- 06:45 AM	0	16	0	0	0	0	0	***16***		0	138	0	2	1	0	0	***141***
06:00 AM ----- 07:00 AM	0	16	0	0	0	0	0	***16***		0	134	0	2	1	0	0	***137***
06:15 AM ----- 07:15 AM	0	25	0	0	0	0	0	***25***		0	119	0	1	0	0	0	***120***
06:30 AM ----- 07:30 AM	0	24	0	0	0	0	0	***24***		0	93	0	1	0	0	0	***94***
06:45 AM ----- 07:45 AM	0	21	0	1	0	1	0	***23***		0	49	0	1	0	0	0	***50***
07:00 AM ----- 08:00 AM	0	22	0	1	0	1	0	***24***		0	23	0	1	0	0	0	***24***
07:15 AM ----- 08:15 AM	0	16	0	1	0	1	0	***18***		0	17	0	0	0	0	0	***17***
07:30 AM ----- 08:30 AM	0	16	0	1	0	2	0	***19***		0	19	0	0	0	0	0	***19***
07:45 AM ----- 08:45 AM	0	16	1	0	0	1	0	***18***		0	23	0	0	0	0	0	***23***
08:00 AM ----- 09:00 AM	0	14	1	0	0	2	0	***17***		0	20	0	0	0	0	0	***20***
08:15 AM ----- 09:15 AM	0	11	1	0	0	2	0	***14***		0	20	0	0	0	0	0	***20***
08:30 AM ----- 09:30 AM	0	12	1	0	0	2	0	***15***		0	18	0	0	0	0	0	***18***
08:45 AM ----- 09:45 AM	0	16	0	0	0	2	0	***18***		0	17	0	0	0	0	0	***17***
09:00 AM ----- 10:00 AM	0	18	0	0	0	1	0	***19***		0	18	1	0	0	0	0	***19***
09:15 AM ----- 10:15 AM	0	18	0	0	0	2	0	***20***		0	15	1	0	0	0	0	***16***
09:30 AM ----- 10:30 AM	0	18	0	0	0	2	0	***20***		0	18	1	0	0	0	0	***19***
09:45 AM ----- 10:45 AM	0	16	0	0	0	2	0	***18***		0	15	1	0	0	0	0	***16***
10:00 AM ----- 11:00 AM	0	17	0	0	0	3	0	***20***		0	20	0	0	0	2	0	***22***
10:15 AM ----- 11:15 AM	0	23	0	0	0	2	0	***25***		0	18	0	0	0	3	0	***21***
10:30 AM ----- 11:30 AM	0	26	0	0	0	3	0	***29***		0	18	1	0	0	3	0	***22***
10:45 AM ----- 11:45 AM	0	30	0	0	0	4	0	***34***		0	24	1	0	1	3	0	***29***
11:00 AM ----- 12:00 PM	0	36	0	0	0	3	0	***39***		0	25	2	0	1	1	0	***29***
11:15 AM ----- 12:15 PM	0	34	0	0	1	3	0	***38***		0	30	2	0	1	0	0	***33***
11:30 AM ----- 12:30 PM	0	33	0	0	2	1	0	***36***		0	35	1	0	1	0	0	***37***
11:45 AM ----- 12:45 PM	0	29	0	0	2	0	0	***31***		0	32	1	0	0	0	0	***33***
12:00 PM ----- 01:00 PM	0	27	0	0	2	0	0	***29***		0	29	0	0	0	0	0	***29***
12:15 PM ----- 01:15 PM	0	26	0	0	1	0	0	***27***		0	26	0	0	0	0	0	***26***
12:30 PM ----- 01:30 PM	0	25	0	0	0	1	0	***26***		0	19	0	0	0	0	0	***19***
12:45 PM ----- 01:45 PM	0	21	0	0	0	1	0	***22***		0	24	0	0	0	0	0	***24***
01:00 PM ----- 02:00 PM	0	18	0	0	0	1	0	***19***		0	27	0	0	0	0	0	***27***
01:15 PM ----- 02:15 PM	0	31	1	0	0	1	0	***33***		0	31	0	0	0	0	0	***31***
01:30 PM ----- 02:30 PM	0	31	1	0	1	1	0	***34***		0	36	0	0	0	0	0	***36***
01:45 PM ----- 02:45 PM	0	40	1	0	1	1	0	***43***		0	45	0	0	0	0	0	***45***
02:00 PM ----- 03:00 PM	0	51	1	0	1	2	0	***55***		0	47	0	0	0	0	0	***47***
02:15 PM ----- 03:15 PM	1	120	1	1	1	2	0	***126***		0	42	0	0	0	0	0	***42***
02:30 PM ----- 03:30 PM	1	133	1	1	0	1	0	***137***		0	37	0	0	0	0	0	***37***
02:45 PM ----- 03:45 PM	1	150	1	1	0	1	0	***154***		0	23	0	0	0	0	0	***23***
03:00 PM ----- 04:00 PM	1	140	1	1	0	0	0	***143***		0	20	0	0	0	0	0	***20***
03:15 PM ----- 04:15 PM	0	73	0	0	0	0	0	***73***		0	21	0	0	0	0	0	***21***
03:30 PM ----- 04:30 PM	0	61	0	0	0	0	0	***61***		0	18	0	0	0	0	0	***18***
03:45 PM ----- 04:45 PM	0	40	1	0	0	0	0	***41***		0	14	0	0	0	0	0	***14***
04:00 PM ----- 05:00 PM	0	42	1	0	0	0	0	***43***		0	6	0	0	0	0	0	***6***
04:15 PM ----- 05:15 PM	0	25	1	0	0	0	0	***26***		0	3	0	0	0	0	0	***3***
04:30 PM ----- 05:30 PM	0	25	1	0	0	0	0	***26***		0	4	0	0	0	0	0	***4***
04:45 PM ----- 05:45 PM	0	24	0	1	0	0	0	***25***		0	3	0	1	0	0	0	***4***
05:00 PM ----- 06:00 PM	0	20	0	1	0	0	0	***21***		0	4	0	1	0	0	0	***5***
05:15 PM ----- 06:15 PM	0	23	0	1	0	0	0	***24***		0	7	0	1	0	0	0	***8***
05:30 PM ----- 06:30 PM	0	23	0	1	0	0	0	***24***		0	8	1	1	0	0	0	***10***
05:45 PM ----- 06:45 PM	0	19	0	0	0	0	0	***19***		0	7	1	0	0	0	0	***8***
06:00 PM ----- 07:00 PM	0	31	0	0	0	0	0	***31***		0	11	1	0	0	0	0	***12***
06:15 PM ----- 07:15 PM	0	25	0	0	0	0	0	***25***		0	9	1	0	0	0	0	***10***
06:30 PM ----- 07:30 PM	0	19	0	0	0	0	0	***19***		0	6	0	0	0	0	0	***6***
06:45 PM ----- 07:45 PM	0	19	0	0	0	0	0	***19***		0	6	0	0	0	0	0	***6***
07:00 PM ----- 08:00 PM	0	3	0	0	0	0	0	***3***		0	1	0	0	0	0	0	***1***
07:15 PM ----- 08:15 PM	0	0	0	0	0	0	0	***0***		0	0	0	0	0	0	0	***0***
07:30 PM ----- 08:30 PM	0	4	0	0	0	0	0	***4***		0	1	0	0	0	0	0	***1***
07:45 PM ----- 08:45 PM	0	13	0	0	0	0	0	***13***		0	5	0	0	0	0	0	***5***
08:00 PM ----- 09:00 PM	0	14	0	0	0	0	0	***14***		0	9	0	0	0	0	0	***9***
08:15 PM ----- 09:15 PM	0	18	0	0	0	0	0	***18***		0	9	0	0	0	0	0	***9***
08:30 PM ----- 09:30 PM	0	15	0	0	0	0	0	***15***		0	11	0	0	0	0	0	***11***
08:45 PM ----- 09:45 PM	0	8	0	0	0	0	0	***8***		0	10	0	0	0	0	0	***10***
09:00 PM ----- 10:00 PM	0	8	0	0	0	0	0	***8***		0	7	0	0	0	0	0	***7***
09:15 PM ----- 10:15 PM	0	9	0	0	0	0	0	***9***		0	8	0	0	0	1	0	***9***
09:30 PM ----- 10:30 PM	0	9	0	0	0	0	0	***9***		0	6	0	0	0	1	0	***7***
09:45 PM ----- 10:45 PM	0	8	0	0	0	0	0	***8***		0	10	0	0	0	1	0	***11***
10:00 PM ----- 11:00 PM	0	7	0	0	0	0	0	***7***		0	16	0	0	0	1	0	***17***
10:15 PM ----- 11:15 PM	0	36	0	0	0	0	0	***36***		0	16	0	0	0	0	0	***16***
10:30 PM ----- 11:30 PM	0	37	0	0	0	0	0	***37***		0	15	0	0	0	0	0	***15***
10:45 PM ----- 11:45 PM	0	36	0	0	0	0	0	***36***		0	12	0	0	0	0	0	***12***
11:00 PM ----- 12:00 AM	0	36	0	0	0	0	0	***36***		0	7	0	0	0	0	0	***7***

Telephone :(510) 232-1271 *Fax:(510)232-1272*

BAYMETRICS

VEHICLE CLASSIFICATION SUMMARY

PROJECT:	**TRAFFIC COUNTS IN HAYWARD**	**SURVEY DATE:**	**10/12/2016** **SURVEY DAY:** **Wednesday**
LOCATION	**A2. BART ACCESS ROAD (FROM WHIPPLE ROAD)**	**SURVEY TIME:**	**12:00 AM TO 12:00 AM**
JURISDICTION:	**HAYWARD**		**FILE:** **3610088**

S U M M A R Y

DIRECTION:		NORTHBOUND								SOUTHBOUND							
CLASSIFICATION		**MOTO**	**AUTO**	**2-AXLE**	**3-AXLE**	**4-AXLE**	**5-AXLE**	**>5-AXLE**	**VOLUME**	**MOTO**	**AUTO**	**2-AXLE**	**3-AXLE**	**4-AXLE**	**5-AXLE**	**>5-AXLE**	**VOLUME**
PEAK	**AM**	1	27	1	0	0	1	0	30	0	14	2	2	0	0	0	18
		3.33	90.00	3.33	0.00	0.00	3.33	0.00	100.00	0.00	77.78	11.11	11.11	0.00	0.00	0.00	100.00
HOUR	**MD**	2	27	0	0	0	1	0	30	1	14	1	1	0	0	0	17
		6.67	90.00	0.00	0.00	0.00	3.33	0.00	100.00	5.88	82.35	5.88	5.88	0.00	0.00	0.00	100.00
	PM	0	9	1	1	0	0	0	11	0	16	1	2	0	0	0	19
		0.00	81.82	9.09	9.09	0.00	0.00	0.00	100.00	0.00	84.21	5.26	10.53	0.00	0.00	0.00	100.00
	EVEN	0	21	0	0	0	0	0	21	0	4	0	0	0	0	0	4
		0.00	100.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	100.00

		NORTHBOUND						TOTAL		SOUTHBOUND						TOTAL
From	**To**	MOTO	AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE	>5-AXLE	VOLUMES	MOTO	AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE	>5-AXLE	VOLUMES
						15 MIN								***TOTALS***			
12:00 AM	12:15 AM	0	0	0	0	0	0	0	***0***	0	1	0	0	0	0	0	***1***
12:15 AM	12:30 AM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
12:30 AM	12:45 AM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
12:45 AM	01:00 AM	0	0	0	0	0	0	0	***0***	0	2	0	0	0	0	0	***2***
01:00 AM	01:15 AM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
01:15 AM	01:30 AM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
01:30 AM	01:45 AM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
01:45 AM	02:00 AM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
02:00 AM	02:15 AM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
02:15 AM	02:30 AM	0	1	0	0	0	0	0	***1***	0	0	0	0	0	0	0	***0***
02:30 AM	02:45 AM	0	1	0	0	0	0	0	***1***	0	0	0	0	0	0	0	***0***
02:45 AM	03:00 AM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
03:00 AM	03:15 AM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
03:15 AM	03:30 AM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
03:30 AM	03:45 AM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
03:45 AM	04:00 AM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
04:00 AM	04:15 AM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
04:15 AM	04:30 AM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
04:30 AM	04:45 AM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
04:45 AM	05:00 AM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
05:00 AM	05:15 AM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
05:15 AM	05:30 AM	0	1	0	0	0	0	0	***1***	0	0	0	0	0	0	0	***0***
05:30 AM	05:45 AM	0	3	0	0	0	0	0	***3***	0	2	0	0	0	0	0	***2***
05:45 AM	06:00 AM	0	5	1	0	0	0	0	***6***	0	0	0	0	0	0	0	***0***
06:00 AM	06:15 AM	0	2	0	0	0	0	0	***2***	0	0	0	0	0	0	0	***0***
06:15 AM	06:30 AM	0	4	0	0	0	0	0	***4***	0	0	0	0	0	0	0	***0***
06:30 AM	06:45 AM	0	7	0	0	0	0	0	***7***	0	0	0	0	0	0	0	***0***
06:45 AM	07:00 AM	0	3	0	0	0	0	0	***3***	0	0	0	0	0	0	0	***0***
07:00 AM	07:15 AM	0	1	0	0	0	0	0	***1***	0	1	0	0	0	0	0	***1***
07:15 AM	07:30 AM	0	2	1	0	0	0	0	***3***	0	0	0	0	0	0	0	***0***
07:30 AM	07:45 AM	0	3	0	0	0	0	0	***3***	0	1	0	0	0	0	0	***1***
07:45 AM	08:00 AM	0	0	1	0	0	0	0	***1***	0	1	0	0	0	0	0	***1***
08:00 AM	08:15 AM	0	1	1	0	0	0	0	***2***	0	1	0	0	0	0	0	***1***
08:15 AM	08:30 AM	0	3	1	0	0	0	0	***4***	0	1	1	0	0	0	0	***2***
08:30 AM	08:45 AM	0	3	2	0	0	0	0	***5***	0	1	1	0	0	0	0	***2***
08:45 AM	09:00 AM	0	3	1	0	0	0	0	***4***	0	1	1	1	0	0	0	***3***
09:00 AM	09:15 AM	1	10	0	0	0	1	0	***12***	0	3	1	1	0	0	0	***5***
09:15 AM	09:30 AM	0	7	0	0	0	0	0	***7***	0	5	0	0	0	0	0	***5***
09:30 AM	09:45 AM	0	7	0	0	0	0	0	***7***	0	5	0	0	0	0	0	***5***
09:45 AM	10:00 AM	1	3	0	0	0	0	0	***4***	1	1	0	0	0	0	0	***2***
10:00 AM	10:15 AM	0	4	0	0	0	0	0	***4***	0	2	0	0	0	0	0	***2***
10:15 AM	10:30 AM	0	5	0	0	0	0	0	***5***	0	3	0	0	0	0	0	***3***
10:30 AM	10:45 AM	0	3	0	0	0	0	0	***3***	0	3	1	1	0	0	0	***5***
10:45 AM	11:00 AM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
11:00 AM	11:15 AM	0	0	0	0	0	0	0	***0***	0	1	0	0	0	0	0	***1***
11:15 AM	11:30 AM	0	5	0	0	0	0	0	***5***	0	4	0	0	0	0	0	***4***
11:30 AM	11:45 AM	0	3	0	0	0	0	0	***3***	0	4	2	0	0	0	0	***6***
11:45 AM	12:00 PM	0	6	0	0	0	0	0	***6***	0	4	0	0	0	0	0	***4***
12:00 PM	12:15 PM	0	1	0	0	0	0	0	***1***	0	1	0	0	0	0	0	***1***
12:15 PM	12:30 PM	0	2	0	1	0	0	0	***3***	0	4	0	0	0	0	0	***4***
12:30 PM	12:45 PM	0	5	0	0	0	0	0	***5***	0	2	0	0	0	0	0	***2***
12:45 PM	01:00 PM	0	3	0	0	0	0	0	***3***	0	1	0	0	0	0	0	***1***
01:00 PM	01:15 PM	0	6	0	0	0	0	0	***6***	0	4	0	0	0	0	0	***4***
01:15 PM	01:30 PM	0	3	0	0	0	0	0	***3***	0	0	0	0	0	0	0	***0***
01:30 PM	01:45 PM	0	1	0	0	0	0	0	***1***	0	1	0	0	0	0	0	***1***
01:45 PM	02:00 PM	0	2	0	0	0	0	0	***2***	0	0	0	0	0	0	0	***0***
02:00 PM	02:15 PM	0	1	0	0	0	0	0	***1***	0	0	0	0	0	0	0	***0***
02:15 PM	02:30 PM	0	3	0	0	0	0	0	***3***	0	2	0	0	0	0	0	***2***
02:30 PM	02:45 PM	0	1	0	0	0	0	0	***1***	0	1	0	0	0	0	0	***1***
02:45 PM	03:00 PM	0	1	0	0	0	0	0	***1***	0	3	0	0	0	0	0	***3***
03:00 PM	03:15 PM	0	0	0	0	0	0	0	***0***	1	1	0	0	0	0	0	***2***
03:15 PM	03:30 PM	0	2	0	0	0	0	0	***2***	0	3	0	1	0	0	0	***4***
03:30 PM	03:45 PM	0	6	0	0	0	0	0	***6***	1	6	0	0	0	0	0	***7***
03:45 PM	04:00 PM	0	0	0	0	0	0	0	***0***	0	3	0	0	0	0	0	***3***
04:00 PM	04:15 PM	0	1	1	1	0	0	0	***3***	0	1	1	0	0	0	0	***2***
04:15 PM	04:30 PM	0	0	1	0	0	0	0	***1***	0	2	1	1	0	0	0	***4***
04:30 PM	04:45 PM	0	0	1	1	0	0	0	***2***	0	3	0	0	0	0	0	***3***
04:45 PM	05:00 PM	0	0	0	0	0	0	0	***0***	0	7	0	1	0	0	0	***8***
05:00 PM	05:15 PM	0	0	0	0	0	0	0	***0***	0	4	0	0	0	0	0	***4***
05:15 PM	05:30 PM	0	1	0	0	0	0	0	***1***	0	3	0	0	0	0	0	***3***
05:30 PM	05:45 PM	0	0	0	0	0	0	0	***0***	0	1	0	0	0	0	0	***1***
05:45 PM	06:00 PM	0	0	0	0	0	0	0	***0***	0	1	0	0	0	0	0	***1***
06:00 PM	06:15 PM	0	0	0	0	0	0	0	***0***	0	2	0	0	0	0	0	***2***
06:15 PM	06:30 PM	0	2	0	0	0	0	0	***2***	0	1	0	0	0	0	0	***1***
06:30 PM	06:45 PM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
06:45 PM	07:00 PM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
07:00 PM	07:15 PM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
07:15 PM	07:30 PM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
07:30 PM	07:45 PM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
07:45 PM	08:00 PM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
08:00 PM	08:15 PM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
08:15 PM	08:30 PM	0	5	0	0	0	0	0	***5***	0	1	0	0	0	0	0	***1***
08:30 PM	08:45 PM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
08:45 PM	09:00 PM	0	14	0	0	0	0	0	***14***	0	3	0	0	0	0	0	***3***
09:00 PM	09:15 PM	0	2	0	0	0	0	0	***2***	0	0	0	0	0	0	0	***0***
09:15 PM	09:30 PM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
09:30 PM	09:45 PM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
09:45 PM	10:00 PM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
10:00 PM	10:15 PM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
10:15 PM	10:30 PM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***
10:30 PM	10:45 PM	0	0	0	0	0	0	0	***0***	0	0	0	0	0	0	0	***0***

10:45 PM ----- 11:00 PM	0	0	0	0	0	0	0	***0***		0	0	0	0	0	0	0	***0***
11:00 PM ----- 11:15 PM	0	3	0	0	0	0	0	***3***		0	3	0	0	0	0	0	***3***
11:15 PM ----- 11:30 PM	0	0	0	0	0	0	0	***0***		0	0	0	0	0	0	0	***0***
11:30 PM ----- 11:45 PM	0	0	0	0	0	0	0	***0***		0	0	0	0	0	0	0	***0***
11:45 PM ----- 12:00 AM	0	1	0	0	0	0	0	***1***		0	0	0	0	0	0	0	***0***

CLASSIFICATION	**MOTO**	**AUTO**	**2-AXLE**	**3-AXLE**	**4-AXLE**	**5-AXLE**	**>5-AXLE**	**VOLUME**		**MOTO**	**AUTO**	**2-AXLE**	**3-AXLE**	**4-AXLE**	**5-AXLE**	**>5-AXLE**	**VOLUME**
DAILY VOLUME	**2**	**162**	**11**	**3**	**0**	**1**	**0**	**179**		**3**	**111**	**9**	**6**	**0**	**0**	**0**	**129**
PERCENTAGE	**1.12**	**90.50**	**6.15**	**1.68**	**0.00**	**0.56**	**0.00**	**100**		**2.33**	**86.05**	**6.98**	**4.65**	**0.00**	**0.00**	**0.00**	**100**

Telephone :(510) 232-1271 ***Fax:(510)232-1272***

	NORTHBOUND							TOTAL		**SOUTHBOUND**							TOTAL
From To	MOTO	AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE	>5-AXLE	VOLUMES		MOTO	AUTO	2-AXLE	3-AXLE	4-AXLE	5-AXLE	>5-AXLE	VOLUMES
HOURLY										***TOTALS***							
12:00 AM ----- 01:00 AM	0	0	0	0	0	0	0	***0***		0	3	0	0	0	0	0	***3***
12:15 AM ----- 01:15 AM	0	0	0	0	0	0	0	***0***		0	2	0	0	0	0	0	***2***
12:30 AM ----- 01:30 AM	0	0	0	0	0	0	0	***0***		0	2	0	0	0	0	0	***2***
12:45 AM ----- 01:45 AM	0	0	0	0	0	0	0	***0***		0	2	0	0	0	0	0	***2***
01:00 AM ----- 02:00 AM	0	0	0	0	0	0	0	***0***		0	0	0	0	0	0	0	***0***
01:15 AM ----- 02:15 AM	0	0	0	0	0	0	0	***0***		0	0	0	0	0	0	0	***0***
01:30 AM ----- 02:30 AM	0	1	0	0	0	0	0	***1***		0	0	0	0	0	0	0	***0***
01:45 AM ----- 02:45 AM	0	2	0	0	0	0	0	***2***		0	0	0	0	0	0	0	***0***
02:00 AM ----- 03:00 AM	0	2	0	0	0	0	0	***2***		0	0	0	0	0	0	0	***0***
02:15 AM ----- 03:15 AM	0	2	0	0	0	0	0	***2***		0	0	0	0	0	0	0	***0***
02:30 AM ----- 03:30 AM	0	1	0	0	0	0	0	***1***		0	0	0	0	0	0	0	***0***
02:45 AM ----- 03:45 AM	0	0	0	0	0	0	0	***0***		0	0	0	0	0	0	0	***0***
03:00 AM ----- 04:00 AM	0	0	0	0	0	0	0	***0***		0	0	0	0	0	0	0	***0***
03:15 AM ----- 04:15 AM	0	0	0	0	0	0	0	***0***		0	0	0	0	0	0	0	***0***
03:30 AM ----- 04:30 AM	0	0	0	0	0	0	0	***0***		0	0	0	0	0	0	0	***0***
03:45 AM ----- 04:45 AM	0	0	0	0	0	0	0	***0***		0	0	0	0	0	0	0	***0***
04:00 AM ----- 05:00 AM	0	0	0	0	0	0	0	***0***		0	0	0	0	0	0	0	***0***
04:15 AM ----- 05:15 AM	0	0	0	0	0	0	0	***0***		0	0	0	0	0	0	0	***0***
04:30 AM ----- 05:30 AM	0	1	0	0	0	0	0	***1***		0	0	0	0	0	0	0	***0***
04:45 AM ----- 05:45 AM	0	4	0	0	0	0	0	***4***		0	2	0	0	0	0	0	***2***
05:00 AM ----- 06:00 AM	0	9	1	0	0	0	0	***10***		0	2	0	0	0	0	0	***2***
05:15 AM ----- 06:15 AM	0	11	1	0	0	0	0	***12***		0	2	0	0	0	0	0	***2***
05:30 AM ----- 06:30 AM	0	14	1	0	0	0	0	***15***		0	2	0	0	0	0	0	***2***
05:45 AM ----- 06:45 AM	0	18	1	0	0	0	0	***19***		0	0	0	0	0	0	0	***0***
06:00 AM ----- 07:00 AM	0	16	0	0	0	0	0	***16***		0	0	0	0	0	0	0	***0***
06:15 AM ----- 07:15 AM	0	15	0	0	0	0	0	***15***		0	1	0	0	0	0	0	***1***
06:30 AM ----- 07:30 AM	0	13	1	0	0	0	0	***14***		0	1	0	0	0	0	0	***1***
06:45 AM ----- 07:45 AM	0	9	1	0	0	0	0	***10***		0	2	0	0	0	0	0	***2***
07:00 AM ----- 08:00 AM	0	6	2	0	0	0	0	***8***		0	3	0	0	0	0	0	***3***
07:15 AM ----- 08:15 AM	0	6	3	0	0	0	0	***9***		0	3	0	0	0	0	0	***3***
07:30 AM ----- 08:30 AM	0	7	3	0	0	0	0	***10***		0	4	1	0	0	0	0	***5***
07:45 AM ----- 08:45 AM	0	7	5	0	0	0	0	***12***		0	4	2	0	0	0	0	***6***
08:00 AM ----- 09:00 AM	0	10	5	0	0	0	0	***15***		0	4	3	1	0	0	0	***8***
08:15 AM ----- 09:15 AM	1	19	4	0	0	1	0	***25***		0	6	4	2	0	0	0	***12***
08:30 AM ----- 09:30 AM	1	23	3	0	0	1	0	***28***		0	10	3	2	0	0	0	***15***
08:45 AM ----- 09:45 AM	1	27	1	0	0	1	0	***30***		0	14	2	2	0	0	0	***18***
09:00 AM ----- 10:00 AM	2	27	0	0	0	1	0	***30***		1	14	1	1	0	0	0	***17***
09:15 AM ----- 10:15 AM	1	21	0	0	0	0	0	***22***		1	13	0	0	0	0	0	***14***
09:30 AM ----- 10:30 AM	1	19	0	0	0	0	0	***20***		1	11	0	0	0	0	0	***12***
09:45 AM ----- 10:45 AM	1	15	0	0	0	0	0	***16***		1	9	1	1	0	0	0	***12***
10:00 AM ----- 11:00 AM	0	12	0	0	0	0	0	***12***		0	8	1	1	0	0	0	***10***
10:15 AM ----- 11:15 AM	0	8	0	0	0	0	0	***8***		0	7	1	1	0	0	0	***9***
10:30 AM ----- 11:30 AM	0	8	0	0	0	0	0	***8***		0	8	1	1	0	0	0	***10***
10:45 AM ----- 11:45 AM	0	8	0	0	0	0	0	***8***		0	9	2	0	0	0	0	***11***
11:00 AM ----- 12:00 PM	0	14	0	0	0	0	0	***14***		0	13	2	0	0	0	0	***15***
11:15 AM ----- 12:15 PM	0	15	0	0	0	0	0	***15***		0	13	2	0	0	0	0	***15***
11:30 AM ----- 12:30 PM	0	12	0	1	0	0	0	***13***		0	13	2	0	0	0	0	***15***
11:45 AM ----- 12:45 PM	0	14	0	1	0	0	0	***15***		0	11	0	0	0	0	0	***11***
12:00 PM ----- 01:00 PM	0	11	0	1	0	0	0	***12***		0	8	0	0	0	0	0	***8***
12:15 PM ----- 01:15 PM	0	16	0	1	0	0	0	***17***		0	11	0	0	0	0	0	***11***
12:30 PM ----- 01:30 PM	0	17	0	0	0	0	0	***17***		0	7	0	0	0	0	0	***7***
12:45 PM ----- 01:45 PM	0	13	0	0	0	0	0	***13***		0	6	0	0	0	0	0	***6***
01:00 PM ----- 02:00 PM	0	12	0	0	0	0	0	***12***		0	5	0	0	0	0	0	***5***
01:15 PM ----- 02:15 PM	0	7	0	0	0	0	0	***7***		0	1	0	0	0	0	0	***1***
01:30 PM ----- 02:30 PM	0	7	0	0	0	0	0	***7***		0	3	0	0	0	0	0	***3***
01:45 PM ----- 02:45 PM	0	7	0	0	0	0	0	***7***		0	3	0	0	0	0	0	***3***
02:00 PM ----- 03:00 PM	0	6	0	0	0	0	0	***6***		0	6	0	0	0	0	0	***6***
02:15 PM ----- 03:15 PM	0	5	0	0	0	0	0	***5***		1	7	0	0	0	0	0	***8***
02:30 PM ----- 03:30 PM	0	4	0	0	0	0	0	***4***		1	8	0	1	0	0	0	***10***
02:45 PM ----- 03:45 PM	0	9	0	0	0	0	0	***9***		2	13	0	1	0	0	0	***16***
03:00 PM ----- 04:00 PM	0	8	0	0	0	0	0	***8***		2	13	0	1	0	0	0	***16***
03:15 PM ----- 04:15 PM	0	9	1	1	0	0	0	***11***		1	13	1	1	0	0	0	***16***
03:30 PM ----- 04:30 PM	0	7	2	1	0	0	0	***10***		1	12	2	1	0	0	0	***16***
03:45 PM ----- 04:45 PM	0	1	3	2	0	0	0	***6***		0	9	2	1	0	0	0	***12***
04:00 PM ----- 05:00 PM	0	1	3	2	0	0	0	***6***		0	13	2	2	0	0	0	***17***
04:15 PM ----- 05:15 PM	0	0	2	1	0	0	0	***3***		0	16	1	2	0	0	0	***19***
04:30 PM ----- 05:30 PM	0	1	1	1	0	0	0	***3***		0	17	0	1	0	0	0	***18***
04:45 PM ----- 05:45 PM	0	1	0	0	0	0	0	***1***		0	15	0	1	0	0	0	***16***
05:00 PM ----- 06:00 PM	0	1	0	0	0	0	0	***1***		0	9	0	0	0	0	0	***9***
05:15 PM ----- 06:15 PM	0	1	0	0	0	0	0	***1***		0	7	0	0	0	0	0	***7***
05:30 PM ----- 06:30 PM	0	2	0	0	0	0	0	***2***		0	5	0	0	0	0	0	***5***
05:45 PM ----- 06:45 PM	0	2	0	0	0	0	0	***2***		0	4	0	0	0	0	0	***4***
06:00 PM ----- 07:00 PM	0	2	0	0	0	0	0	***2***		0	3	0	0	0	0	0	***3***
06:15 PM ----- 07:15 PM	0	2	0	0	0	0	0	***2***		0	1	0	0	0	0	0	***1***
06:30 PM ----- 07:30 PM	0	0	0	0	0	0	0	***0***		0	0	0	0	0	0	0	***0***
06:45 PM ----- 07:45 PM	0	0	0	0	0	0	0	***0***		0	0	0	0	0	0	0	***0***
07:00 PM ----- 08:00 PM	0	0	0	0	0	0	0	***0***		0	0	0	0	0	0	0	***0***
07:15 PM ----- 08:15 PM	0	0	0	0	0	0	0	***0***		0	0	0	0	0	0	0	***0***
07:30 PM ----- 08:30 PM	0	5	0	0	0	0	0	***5***		0	1	0	0	0	0	0	***1***
07:45 PM ----- 08:45 PM	0	5	0	0	0	0	0	***5***		0	1	0	0	0	0	0	***1***
08:00 PM ----- 09:00 PM	0	19	0	0	0	0	0	***19***		0	4	0	0	0	0	0	***4***
08:15 PM ----- 09:15 PM	0	21	0	0	0	0	0	***21***		0	4	0	0	0	0	0	***4***
08:30 PM ----- 09:30 PM	0	16	0	0	0	0	0	***16***		0	3	0	0	0	0	0	***3***
08:45 PM ----- 09:45 PM	0	16	0	0	0	0	0	***16***		0	3	0	0	0	0	0	***3***
09:00 PM ----- 10:00 PM	0	2	0	0	0	0	0	***2***		0	0	0	0	0	0	0	***0***
09:15 PM ----- 10:15 PM	0	0	0	0	0	0	0	***0***		0	0	0	0	0	0	0	***0***
09:30 PM ----- 10:30 PM	0	0	0	0	0	0	0	***0***		0	0	0	0	0	0	0	***0***
09:45 PM ----- 10:45 PM	0	0	0	0	0	0	0	***0***		0	0	0	0	0	0	0	***0***
10:00 PM ----- 11:00 PM	0	0	0	0	0	0	0	***0***		0	0	0	0	0	0	0	***0***
10:15 PM ----- 11:15 PM	0	3	0	0	0	0	0	***3***		0	3	0	0	0	0	0	***3***
10:30 PM ----- 11:30 PM	0	3	0	0	0	0	0	***3***		0	3	0	0	0	0	0	***3***
10:45 PM ----- 11:45 PM	0	3	0	0	0	0	0	***3***		0	3	0	0	0	0	0	***3***
11:00 PM ----- 12:00 AM	0	4	0	0	0	0	0	***4***		0	3	0	0	0	0	0	***3***

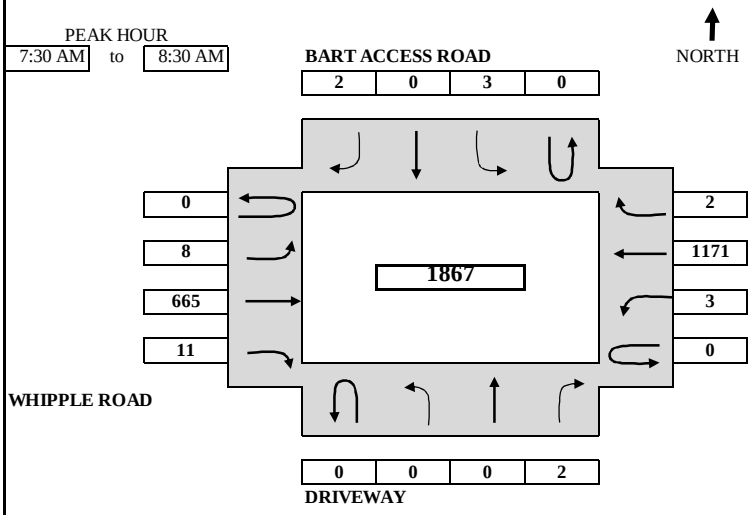
APPENDIX B
LEVEL OF SERVICE CALCULATION SHEETS
for
EXISTING CONDITIONS

B.A.Y.M.E.T.R.I.C.S.

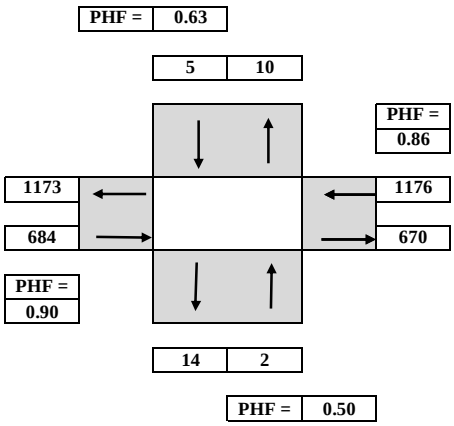
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNT IN HAYWARD**	**SURVEY DATE:**	**10/12/2016**	**DAY:**	**WEDNESDAY**
N-S APPROACH:	**DRIVEWAY - BART ACCESS ROAD**	**SURVEY TIME:**	**7:00 AM**	**TO**	**9:00 AM**
E-W APPROACH:	**WHIPPLE ROAD**	**JURISDICTION:**	**HAYWARD**	**FILE:**	**3610088**

PEAK HOUR 7:30 AM to 8:30 AM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
7:00 AM	to	7:15 AM		1	0	2		0	1	0		1	97	1		1	176	0	**280**
7:15 AM	to	7:30 AM		1	0	2		0	1	0		3	217	1		2	362	1	**590**
7:30 AM	to	7:45 AM		1	0	3		0	1	1		6	372	3		4	632	1	**1024**
7:45 AM	to	8:00 AM		1	0	3		1	1	1		7	527	7		5	938	1	**1492**
8:00 AM	to	8:15 AM		1	0	3		1	1	2		8	696	11		5	1278	2	**2008**
8:15 AM	to	8:30 AM		1	0	4		3	1	2		11	882	12		5	1533	3	**2457**
8:30 AM	to	8:45 AM		1	0	8		4	2	2		15	1025	12		8	1756	4	**2837**
8:45 AM	to	9:00 AM		1	1	8		7	2	2		16	1135	14		8	1933	6	**3133**
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	1	0	2	0	0	1	0	0	1	97	1	0	1	176	0	**280**
7:15 AM	to	7:30 AM	0	0	0	0	0	0	0	0	0	2	120	0	0	1	186	1	**310**
7:30 AM	to	7:45 AM	0	0	0	1	0	0	0	1	0	3	155	2	0	2	270	0	**434**
7:45 AM	to	8:00 AM	0	0	0	0	0	1	0	0	0	1	155	4	0	1	306	0	**468**
8:00 AM	to	8:15 AM	0	0	0	0	0	0	0	1	0	1	169	4	0	0	340	1	**516**
8:15 AM	to	8:30 AM	0	0	0	1	0	2	0	0	0	3	186	1	0	0	255	1	**449**
8:30 AM	to	8:45 AM	0	0	0	4	0	1	1	0	0	4	143	0	0	3	223	1	**380**
8:45 AM	to	9:00 AM	0	0	1	0	0	3	0	0	0	1	110	2	0	0	177	2	**296**
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	1	0	3	0	1	1	1	0	7	527	7	0	5	938	1	**1492**
7:15 AM	to	8:15 AM	0	0	0	1	0	1	0	2	0	7	599	10	0	4	1102	2	**1728**
7:30 AM	to	8:30 AM	0	0	0	2	0	3	0	2	0	8	665	11	0	3	1171	2	**1867**
7:45 AM	to	8:45 AM	0	0	0	5	0	4	1	1	0	9	653	9	0	4	1124	3	**1813**
8:00 AM	to	9:00 AM	0	0	1	5	0	6	1	1	0	9	608	7	0	3	995	5	**1641**

PEAK HOUR SUMMARY

7:30 AM to 8:30 AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME	0	0	0	2	0	3	0	2	0	8	665	11	0	3	1171	2	1867
PHF BY MOVEMENT	0.00	0.00	0.00	0.50	0.00	0.38	0.00	0.50	0.00	0.67	0.89	0.69	0.00	0.38	0.86	0.50	OVERALL
PHF BY APPROACH	0.50				0.63				0.90				0.86				**0.90**
PEDESTRIAN																	**8**
BICYCLE																	**5**

PEAK HOUR 7:30 AM 8:30 AM	INTERSECTION ARRIVAL & DEPARTURE VOLUMES								INTERSECTION TOTAL	
	NORTH BOUND		SOUTH BOUND		EAST BOUND		WEST BOUND			
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
TOTAL VOLUME	2	10	5	14	684	670	1176	1173	**1867**	**1867**
AUTO (CLASS 1, 2 & 3)	2	7	4	14	646	634	1154	1151	**1806**	**1806**
TOTAL TRUCK VOLUMES	0	3	1	0	38	36	22	22	**61**	**61**
2 - AXLES (CLASS 4 & 5)	0	3	1	0	30	28	9	9	**40**	**40**
3 - AXLES (CLASS 6 & 8)	0	0	0	0	4	4	4	4	**8**	**8**
4 - AXLES (CLASS 7 & 8)	0	0	0	0	1	1	0	0	**1**	**1**
5 - AXLES (CLASS 9 & 11)	0	0	0	0	3	3	9	9	**12**	**12**
>5-AXLES (CLASS 10,12 &13)	0	0	0	0	0	0	0	0	**0**	**0**

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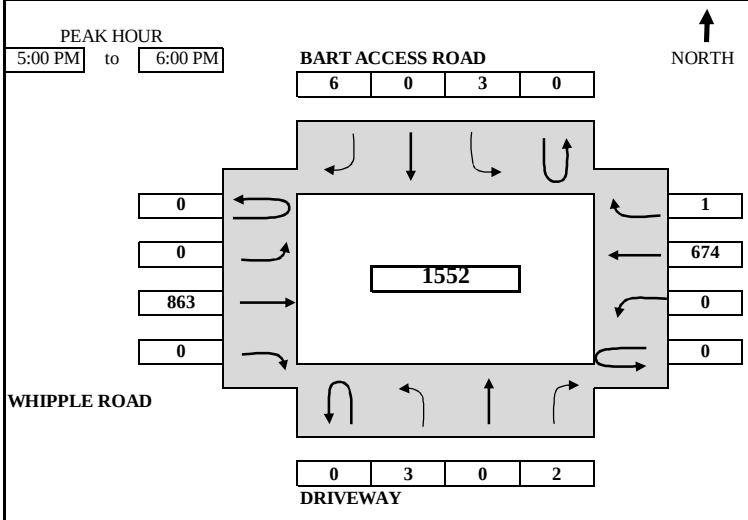
B.A.Y.M.E.T.R.I.C.S.

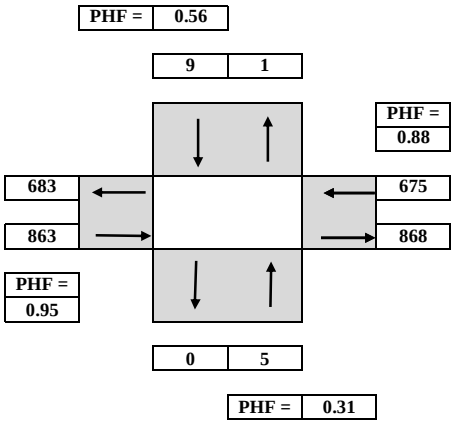
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNT IN HAYWARD**		**SURVEY DATE:**	**10/12/2016**	**DAY: WEDNESDAY**
N-S APPROACH:	**DRIVEWAY - BART ACCESS ROAD**		**SURVEY TIME:**	**4:00 PM**	**TO 6:00 PM**
E-W APPROACH:	**WHIPPLE ROAD**		**JURISDICTION:**	**HAYWARD**	**FILE: 3610088**

PEAK HOUR 5:00 PM to 6:00 PM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
4:00 PM	to	4:15 PM		1	0	1		1	0	1		1	216	1		0	139	2	**363**
4:15 PM	to	4:30 PM		2	0	3		4	0	2		1	421	3		0	291	3	**730**
4:30 PM	to	4:45 PM		6	0	5		5	0	4		1	649	4		0	412	5	**1091**
4:45 PM	to	5:00 PM		6	0	6		7	0	10		1	865	4		0	574	5	**1478**
5:00 PM	to	5:15 PM		9	0	7		9	0	12		1	1091	4		0	713	5	**1851**
5:15 PM	to	5:30 PM		9	0	7		9	0	15		1	1319	4		0	887	6	**2257**
5:30 PM	to	5:45 PM		9	0	8		9	0	16		1	1505	4		0	1079	6	**2637**
5:45 PM	to	6:00 PM		9	0	8		10	0	16		1	1728	4		0	1248	6	**3030**
TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	1	0	1	0	1	0	1	0	1	216	1	0	0	139	2	**363**
4:15 PM	to	4:30 PM	0	1	0	2	0	3	0	1	0	0	205	2	0	0	152	1	**367**
4:30 PM	to	4:45 PM	0	4	0	2	0	1	0	2	0	0	228	1	0	0	121	2	**361**
4:45 PM	to	5:00 PM	0	0	0	1	0	2	0	6	0	0	216	0	0	0	162	0	**387**
5:00 PM	to	5:15 PM	0	3	0	1	0	2	0	2	0	0	226	0	0	0	139	0	**373**
5:15 PM	to	5:30 PM	0	0	0	0	0	0	0	3	0	0	228	0	0	0	174	1	**406**
5:30 PM	to	5:45 PM	0	0	0	1	0	0	0	1	0	0	186	0	0	0	192	0	**380**
5:45 PM	to	6:00 PM	0	0	0	0	0	1	0	0	0	0	223	0	0	0	169	0	**393**
HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	6	0	6	0	7	0	10	0	1	865	4	0	0	574	5	**1478**
4:15 PM	to	5:15 PM	0	8	0	6	0	8	0	11	0	0	875	3	0	0	574	3	**1488**
4:30 PM	to	5:30 PM	0	7	0	4	0	5	0	13	0	0	898	1	0	0	596	3	**1527**
4:45 PM	to	5:45 PM	0	3	0	3	0	4	0	12	0	0	856	0	0	0	667	1	**1546**
5:00 PM	to	6:00 PM	0	3	0	2	0	3	0	6	0	0	863	0	0	0	674	1	**1552**

PEAK HOUR SUMMARY

5:00 PM to 6:00 PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME	0	3	0	2	0	3	0	6	0	0	863	0	0	0	674	1	1552
PHF BY MOVEMENT	0.00	0.25	0.00	0.50	0.00	0.38	0.00	0.50	0.00	0.00	0.95	0.00	0.00	0.00	0.88	0.25	OVERALL
PHF BY APPROACH	0.31				0.56				0.95				0.88				**0.96**
PEDESTRIAN																	**7**
BICYCLE																	**1**

PEAK HOUR 5:00 PM 6:00 PM	INTERSECTION ARRIVAL & DEPARTURE VOLUMES								INTERSECTION TOTAL	
	NORTH BOUND		SOUTH BOUND		EAST BOUND		WEST BOUND			
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
TOTAL VOLUME	5	1	9	0	863	868	675	683	**1552**	**1552**
AUTO (CLASS 1, 2 & 3)	5	1	9	0	855	860	667	675	**1536**	**1536**
TOTAL TRUCK VOLUMES	0	0	0	0	8	8	8	8	**16**	**16**
2 - AXLES (CLASS 4 & 5)	0	0	0	0	7	7	6	6	**13**	**13**
3 - AXLES (CLASS 6 & 8)	0	0	0	0	0	0	1	1	**1**	**1**
4 - AXLES (CLASS 7 & 8)	0	0	0	0	1	1	1	1	**2**	**2**
5 - AXLES (CLASS 9 & 11)	0	0	0	0	0	0	0	0	**0**	**0**
>5-AXLES (CLASS 10,12 &13)	0	0	0	0	0	0	0	0	**0**	**0**

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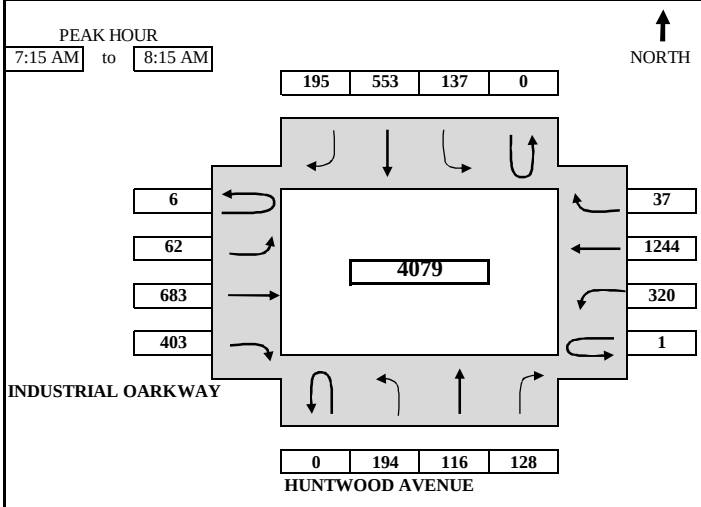
B.A.Y.M.E.T.R.I.C.S.

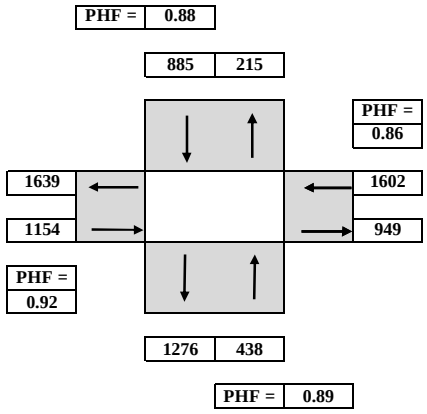
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNT IN HAYWARD**	**SURVEY DATE:**	**10/12/2016**	**DAY:**	**WEDNESDAY**
N-S APPROACH:	**HUNTWOOD AVENUE**	**SURVEY TIME:**	**7:00 AM**	**TO**	**9:00 AM**
E-W APPROACH:	**INDUSTRIAL OARKWAY**	**JURISDICTION:**	**HAYWARD**	**FILE:**	**3610088**

PEAK HOUR 7:15 AM to 8:15 AM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
7:00 AM	to	7:15 AM		47	19	34		21	121	51	1	9	121	75	0	66	262	11	**838**
7:15 AM	to	7:30 AM		103	42	68		46	255	104	3	22	270	161	0	153	549	19	**1795**
7:30 AM	to	7:45 AM		158	73	105		79	399	149	4	32	457	258	1	232	803	24	**2774**
7:45 AM	to	8:00 AM		209	106	131		127	555	196	6	53	640	367	1	313	1180	34	**3918**
8:00 AM	to	8:15 AM		241	135	162		158	674	246	7	71	804	478	1	386	1506	48	**4917**
8:15 AM	to	8:30 AM		288	166	191		191	788	298	12	91	947	592	1	448	1779	65	**5857**
8:30 AM	to	8:45 AM		332	185	219		208	866	331	19	106	1042	681	1	502	2022	81	**6595**
8:45 AM	to	9:00 AM		363	205	236		217	931	358	28	118	1134	748	1	579	2219	93	**7230**
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	47	19	34	0	21	121	51	1	9	121	75	0	66	262	11	**838**
7:15 AM	to	7:30 AM	0	56	23	34	0	25	134	53	2	13	149	86	0	87	287	8	**957**
7:30 AM	to	7:45 AM	0	55	31	37	0	33	144	45	1	10	187	97	1	79	254	5	**979**
7:45 AM	to	8:00 AM	0	51	33	26	0	48	156	47	2	21	183	109	0	81	377	10	**1144**
8:00 AM	to	8:15 AM	0	32	29	31	0	31	119	50	1	18	164	111	0	73	326	14	**999**
8:15 AM	to	8:30 AM	0	47	31	29	0	33	114	52	5	20	143	114	0	62	273	17	**940**
8:30 AM	to	8:45 AM	0	44	19	28	0	17	78	33	7	15	95	89	0	54	243	16	**738**
8:45 AM	to	9:00 AM	0	31	20	17	0	9	65	27	9	12	92	67	0	77	197	12	**635**
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	209	106	131	0	127	555	196	6	53	640	367	1	313	1180	34	**3918**
7:15 AM	to	8:15 AM	0	194	116	128	0	137	553	195	6	62	683	403	1	320	1244	37	**4079**
7:30 AM	to	8:30 AM	0	185	124	123	0	145	533	194	9	69	677	431	1	295	1230	46	**4062**
7:45 AM	to	8:45 AM	0	174	112	114	0	129	467	182	15	74	585	423	0	270	1219	57	**3821**
8:00 AM	to	9:00 AM	0	154	99	105	0	90	376	162	22	65	494	381	0	266	1039	59	**3312**

PEAK HOUR SUMMARY

7:15 AM to 8:15 AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME	0	194	116	128	0	137	553	195	6	62	683	403	1	320	1244	37	4079
PHF BY MOVEMENT	0.00	0.87	0.88	0.86	0.00	0.71	0.89	0.92	0.75	0.74	0.91	0.91	0.25	0.92	0.82	0.66	OVERALL
PHF BY APPROACH	0.89				0.88				0.92				0.86				**0.89**
PEDESTRIAN																	**16**
BICYCLE																	**10**

PEAK HOUR 7:15 AM 8:15 AM	INTERSECTION ARRIVAL & DEPARTURE VOLUMES								INTERSECTION TOTAL	
	NORTH BOUND		SOUTH BOUND		EAST BOUND		WEST BOUND			
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
TOTAL VOLUME	438	215	885	1276	1154	949	1602	1639	**4079**	**4079**
AUTO (CLASS 1, 2 & 3)	333	205	876	1211	1067	891	1555	1524	**3831**	**3831**
TOTAL TRUCK VOLUMES	105	10	9	65	87	58	47	115	**248**	**248**
2 - AXLES (CLASS 4 & 5)	72	10	8	40	53	44	36	75	**169**	**169**
3 - AXLES (CLASS 6 & 8)	11	0	0	7	12	7	5	14	**28**	**28**
4 - AXLES (CLASS 7 & 8)	3	0	0	4	5	1	2	5	**10**	**10**
5 - AXLES (CLASS 9 & 11)	19	0	1	14	17	6	4	21	**41**	**41**
>5-AXLES (CLASS 10,12 &13)	0	0	0	0	0	0	0	0	**0**	**0**

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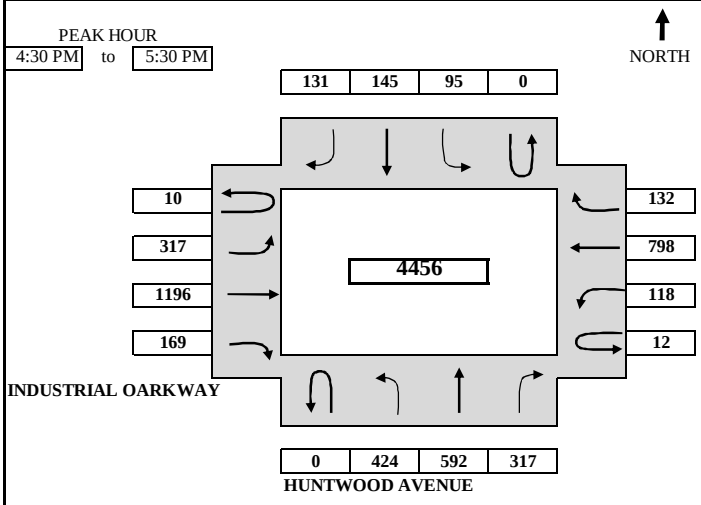
B.A.Y.M.E.T.R.I.C.S.

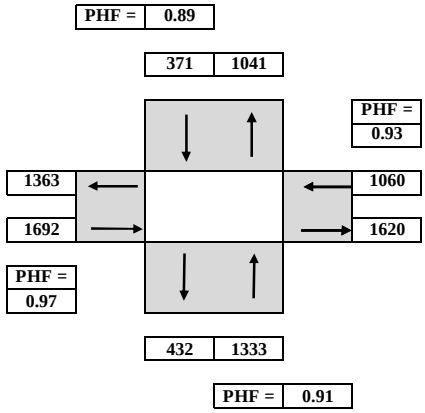
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNT IN HAYWARD**	**SURVEY DATE:**	**10/12/2016**	**DAY:**	**WEDNESDAY**
N-S APPROACH:	**HUNTWOOD AVENUE**	**SURVEY TIME:**	**4:00 PM**	**TO**	**6:00 PM**
E-W APPROACH:	**INDUSTRIAL OARKWAY**	**JURISDICTION:**	**HAYWARD**	**FILE:**	**3610088**

PEAK HOUR 4:30 PM to 5:30 PM



ARRIVAL / DEPARTURE VOLUMES



TIME From	TIME To	NORTHBOUND U-TURN	NORTHBOUND LEFT	NORTHBOUND THRU	NORTHBOUND RIGHT	SOUTHBOUND U-TURN	SOUTHBOUND LEFT	SOUTHBOUND THRU	SOUTHBOUND RIGHT	EASTBOUND U-TURN	EASTBOUND LEFT	EASTBOUND THRU	EASTBOUND RIGHT	WESTBOUND U-TURN	WESTBOUND LEFT	WESTBOUND THRU	WESTBOUND RIGHT	TOTAL
SURVEY DATA																		
4:00 PM	4:15 PM		91	104	61		17	21	32	2	65	298	61	1	23	187	27	**990**
4:15 PM	4:30 PM		185	216	130		34	54	59	3	132	566	116	3	50	382	56	**1986**
4:30 PM	4:45 PM		298	380	218		52	84	96	4	201	869	160	6	81	555	87	**3091**
4:45 PM	5:00 PM		410	513	301		84	123	129	7	275	1166	205	9	106	751	122	**4201**
5:00 PM	5:15 PM		533	669	383		108	164	164	9	364	1453	248	13	134	970	155	**5367**
5:15 PM	5:30 PM		609	808	447		129	199	190	13	449	1762	285	15	168	1180	188	**6442**
5:30 PM	5:45 PM		693	931	524		145	228	219	14	514	2038	324	16	192	1403	233	**7474**
5:45 PM	6:00 PM		760	1076	579		162	267	252	15	585	2403	362	20	225	1546	267	**8519**
TOTAL BY PERIOD																		
4:00 PM	4:15 PM	0	91	104	61	0	17	21	32	2	65	298	61	1	23	187	27	**990**
4:15 PM	4:30 PM	0	94	112	69	0	17	33	27	1	67	268	55	2	27	195	29	**996**
4:30 PM	4:45 PM	0	113	164	88	0	18	30	37	1	69	303	44	3	31	173	31	**1105**
4:45 PM	5:00 PM	0	112	133	83	0	32	39	33	3	74	297	45	3	25	196	35	**1110**
5:00 PM	5:15 PM	0	123	156	82	0	24	41	35	2	89	287	43	4	28	219	33	**1166**
5:15 PM	5:30 PM	0	76	139	64	0	21	35	26	4	85	309	37	2	34	210	33	**1075**
5:30 PM	5:45 PM	0	84	123	77	0	16	29	29	1	65	276	39	1	24	223	45	**1032**
5:45 PM	6:00 PM	0	67	145	55	0	17	39	33	1	71	365	38	4	33	143	34	**1045**
HOURLY TOTALS																		
4:00 PM	5:00 PM	0	410	513	301	0	84	123	129	7	275	1166	205	9	106	751	122	**4201**
4:15 PM	5:15 PM	0	442	565	322	0	91	143	132	7	299	1155	187	12	111	783	128	**4377**
4:30 PM	5:30 PM	0	424	592	317	0	95	145	131	10	317	1196	169	12	118	798	132	**4456**
4:45 PM	5:45 PM	0	395	551	306	0	93	144	123	10	313	1169	164	10	111	848	146	**4383**
5:00 PM	6:00 PM	0	350	563	278	0	78	144	123	8	310	1237	157	11	119	795	145	**4318**

PEAK HOUR SUMMARY

4:30 PM to 5:30 PM	NORTHBOUND NBU	NBL	NBT	NBR	SOUTHBOUND SBU	SBL	SBT	SBR	EASTBOUND EBU	EBL	EBT	EBR	WESTBOUND WBU	WBL	WBT	WBR	TOTAL
VOLUME	0	424	592	317	0	95	145	131	10	317	1196	169	12	118	798	132	4456
PHF BY MOVEMENT	0.00	0.86	0.90	0.90	0.00	0.74	0.88	0.89	0.63	0.89	0.97	0.94	0.75	0.87	0.91	0.94	OVERALL
PHF BY APPROACH	0.91				0.89				0.97				0.93				**0.96**
PEDESTRIAN																	**18**
BICYCLE																	**8**

PEAK HOUR 4:30 PM 5:30 PM	INTERSECTION ARRIVAL & DEPARTURE VOLUMES NORTH BOUND IN	NORTH BOUND OUT	SOUTH BOUND IN	SOUTH BOUND OUT	EAST BOUND IN	EAST BOUND OUT	WEST BOUND IN	WEST BOUND OUT	INTERSECTION TOTAL IN	INTERSECTION TOTAL OUT
TOTAL VOLUME	1333	1041	371	432	1692	1620	1060	1363	**4456**	**4456**
AUTO (CLASS 1, 2 & 3)	1282	1030	356	370	1614	1585	1037	1304	**4289**	**4289**
TOTAL TRUCK VOLUMES	51	11	15	62	78	35	23	59	**167**	**167**
2 - AXLES (CLASS 4 & 5)	25	11	4	39	56	26	15	24	**100**	**100**
3 - AXLES (CLASS 6 & 8)	10	0	11	5	1	2	3	18	**25**	**25**
4 - AXLES (CLASS 7 & 8)	5	0	0	9	9	2	0	3	**14**	**14**
5 - AXLES (CLASS 9 & 11)	11	0	0	9	12	5	5	14	**28**	**28**
>5-AXLES (CLASS 10,12 &13)	0	0	0	0	0	0	0	0	**0**	**0**

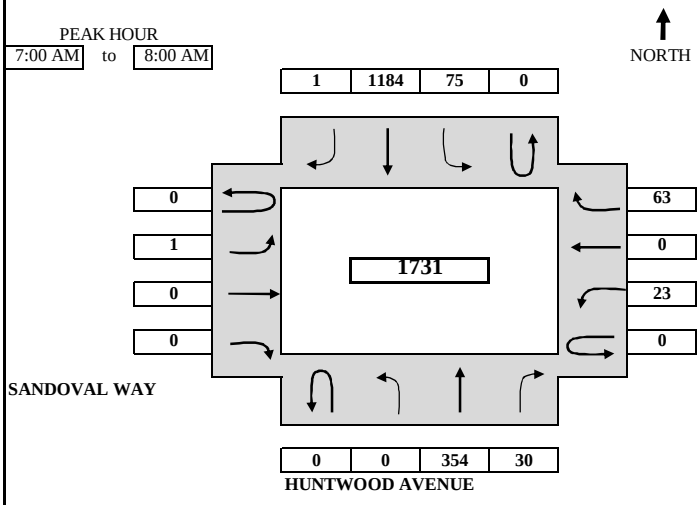
TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

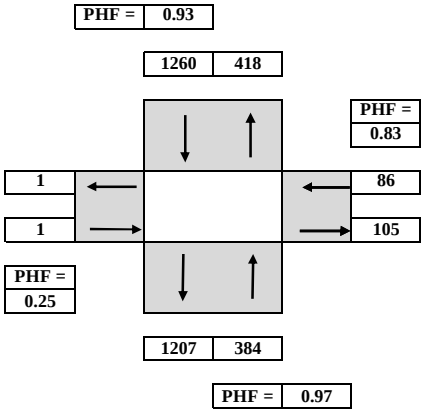
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNT IN HAYWARD**	**SURVEY DATE:**	**10/12/2016**	**DAY:**	**WEDNESDAY**
N-S APPROACH:	**HUNTWOOD AVENUE**	**SURVEY TIME:**	**7:00 AM**	**TO**	**9:00 AM**
E-W APPROACH:	**SANDOVAL WAY**	**JURISDICTION:**	**HAYWARD**	**FILE:**	**3610088**

PEAK HOUR 7:00 AM to 8:00 AM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
7:00 AM	to	7:15 AM		0	85	8		19	271	1		0	0	0		6	0	19	**409**
7:15 AM	to	7:30 AM		0	173	17		40	544	1		1	0	0		11	0	40	**827**
7:30 AM	to	7:45 AM		0	262	23		59	862	1		1	0	0		16	0	48	**1272**
7:45 AM	to	8:00 AM		0	354	30		75	1184	1		1	0	0		23	0	63	**1731**
8:00 AM	to	8:15 AM		0	451	36		92	1449	2		1	0	0		28	0	72	**2131**
8:15 AM	to	8:30 AM		0	549	45		117	1707	2		1	0	0		31	0	83	**2535**
8:30 AM	to	8:45 AM		0	640	51		138	1905	2		2	0	0		35	0	89	**2862**
8:45 AM	to	9:00 AM		0	699	59		155	2096	2		2	0	0		39	0	95	**3147**
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	0	85	8	0	19	271	1	0	0	0	0	0	6	0	19	**409**
7:15 AM	to	7:30 AM	0	0	88	9	0	21	273	0	0	1	0	0	0	5	0	21	**418**
7:30 AM	to	7:45 AM	0	0	89	6	0	19	318	0	0	0	0	0	0	5	0	8	**445**
7:45 AM	to	8:00 AM	0	0	92	7	0	16	322	0	0	0	0	0	0	7	0	15	**459**
8:00 AM	to	8:15 AM	0	0	97	6	0	17	265	1	0	0	0	0	0	5	0	9	**400**
8:15 AM	to	8:30 AM	0	0	98	9	0	25	258	0	0	0	0	0	0	3	0	11	**404**
8:30 AM	to	8:45 AM	0	0	91	6	0	21	198	0	0	1	0	0	0	4	0	6	**327**
8:45 AM	to	9:00 AM	0	0	59	8	0	17	191	0	0	0	0	0	0	4	0	6	**285**
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	0	354	30	0	75	1184	1	0	1	0	0	0	23	0	63	**1731**
7:15 AM	to	8:15 AM	0	0	366	28	0	73	1178	1	0	1	0	0	0	22	0	53	**1722**
7:30 AM	to	8:30 AM	0	0	376	28	0	77	1163	1	0	0	0	0	0	20	0	43	**1708**
7:45 AM	to	8:45 AM	0	0	378	28	0	79	1043	1	0	1	0	0	0	19	0	41	**1590**
8:00 AM	to	9:00 AM	0	0	345	29	0	80	912	1	0	1	0	0	0	16	0	32	**1416**

PEAK HOUR SUMMARY

7:00 AM to 8:00 AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME	0	0	354	30	0	75	1184	1	0	1	0	0	0	23	0	63	1731
PHF BY MOVEMENT	0.00	0.00	0.96	0.83	0.00	0.89	0.92	0.25	0.00	0.25	0.00	0.00	0.00	0.82	0.00	0.75	OVERALL
PHF BY APPROACH	0.97				0.93				0.25				0.83				**0.94**
PEDESTRIAN																	**9**
BICYCLE																	**18**

PEAK HOUR 7:00 AM 8:00 AM	INTERSECTION ARRIVAL & DEPARTURE VOLUMES								INTERSECTION TOTAL	
	NORTH BOUND		SOUTH BOUND		EAST BOUND		WEST BOUND			
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
TOTAL VOLUME	384	418	1260	1207	1	105	86	1	**1731**	**1731**
AUTO (CLASS 1, 2 & 3)	284	316	1201	1148	1	83	62	1	**1548**	**1548**
TOTAL TRUCK VOLUMES	100	102	59	59	0	22	24	0	**183**	**183**
2 - AXLES (CLASS 4 & 5)	61	63	39	39	0	20	22	0	**122**	**122**
3 - AXLES (CLASS 6 & 8)	11	11	6	6	0	1	1	0	**18**	**18**
4 - AXLES (CLASS 7 & 8)	2	2	1	1	0	0	0	0	**3**	**3**
5 - AXLES (CLASS 9 & 11)	26	26	13	13	0	1	1	0	**40**	**40**
>5-AXLES (CLASS 10,12 &13)	0	0	0	0	0	0	0	0	**0**	**0**

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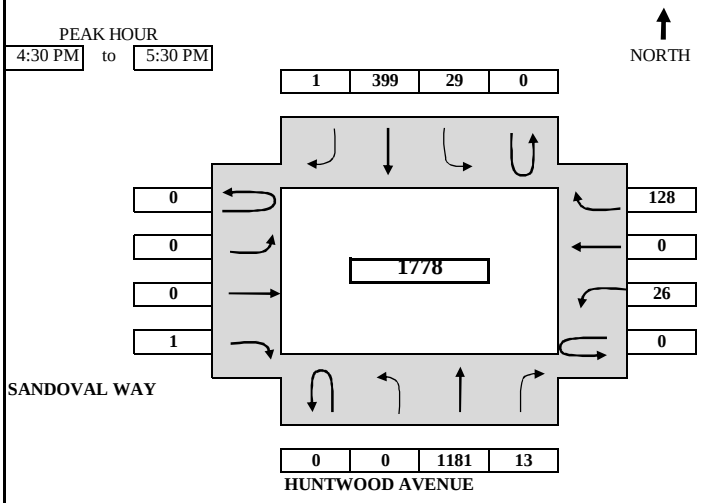
B.A.Y.M.E.T.R.I.C.S.

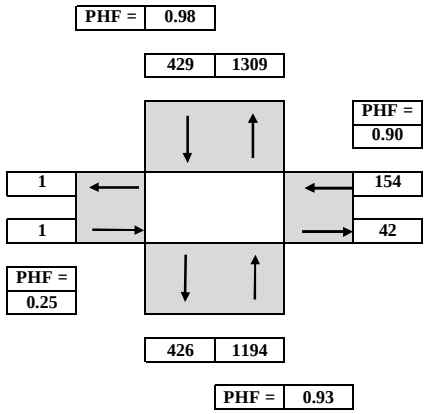
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNT IN HAYWARD**	**SURVEY DATE:**	**10/12/2016**	**DAY:**	**WEDNESDAY**
N-S APPROACH:	**HUNTWOOD AVENUE**	**SURVEY TIME:**	**4:00 PM**	**TO**	**6:00 PM**
E-W APPROACH:	**SANDOVAL WAY**	**JURISDICTION:**	**HAYWARD**	**FILE:**	**3610088**

PEAK HOUR 4:30 PM to 5:30 PM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
4:00 PM	to	4:15 PM		0	257	4		9	98	0		0	0	0		7	0	37	**412**
4:15 PM	to	4:30 PM		0	479	9		20	195	0		0	0	0		13	0	70	**786**
4:30 PM	to	4:45 PM		0	788	11		30	288	0		0	0	0		22	0	99	**1238**
4:45 PM	to	5:00 PM		0	1091	14		36	391	1		0	0	0		30	0	132	**1695**
5:00 PM	to	5:15 PM		0	1407	18		44	493	1		0	0	0		34	0	171	**2168**
5:15 PM	to	5:30 PM		0	1660	22		49	594	1		0	0	1		39	0	198	**2564**
5:30 PM	to	5:45 PM		0	1927	25		62	683	1		0	0	2		42	0	231	**2973**
5:45 PM	to	6:00 PM		0	2158	28		67	781	1		1	0	2		46	0	262	**3346**
TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	0	257	4	0	9	98	0	0	0	0	0	0	7	0	37	**412**
4:15 PM	to	4:30 PM	0	0	222	5	0	11	97	0	0	0	0	0	0	6	0	33	**374**
4:30 PM	to	4:45 PM	0	0	309	2	0	10	93	0	0	0	0	0	0	9	0	29	**452**
4:45 PM	to	5:00 PM	0	0	303	3	0	6	103	1	0	0	0	0	0	8	0	33	**457**
5:00 PM	to	5:15 PM	0	0	316	4	0	8	102	0	0	0	0	0	0	4	0	39	**473**
5:15 PM	to	5:30 PM	0	0	253	4	0	5	101	0	0	0	0	1	0	5	0	27	**396**
5:30 PM	to	5:45 PM	0	0	267	3	0	13	89	0	0	0	0	1	0	3	0	33	**409**
5:45 PM	to	6:00 PM	0	0	231	3	0	5	98	0	0	1	0	0	0	4	0	31	**373**
HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	0	1091	14	0	36	391	1	0	0	0	0	0	30	0	132	**1695**
4:15 PM	to	5:15 PM	0	0	1150	14	0	35	395	1	0	0	0	0	0	27	0	134	**1756**
4:30 PM	to	5:30 PM	0	0	1181	13	0	29	399	1	0	0	0	1	0	26	0	128	**1778**
4:45 PM	to	5:45 PM	0	0	1139	14	0	32	395	1	0	0	0	2	0	20	0	132	**1735**
5:00 PM	to	6:00 PM	0	0	1067	14	0	31	390	0	0	1	0	2	0	16	0	130	**1651**

PEAK HOUR SUMMARY

4:30 PM to 5:30 PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME	0	0	1181	13	0	29	399	1	0	0	0	1	0	26	0	128	1778
PHF BY MOVEMENT	0.00	0.00	0.93	0.81	0.00	0.73	0.97	0.25	0.00	0.00	0.00	0.25	0.00	0.72	0.00	0.82	OVERALL
PHF BY APPROACH	0.93				0.98				0.25				0.90				**0.94**
PEDESTRIAN																	**13**
BICYCLE																	**17**

PEAK HOUR 4:30 PM 5:30 PM	INTERSECTION ARRIVAL & DEPARTURE VOLUMES								INTERSECTION TOTAL	
	NORTH BOUND		SOUTH BOUND		EAST BOUND		WEST BOUND			
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
TOTAL VOLUME	1194	1309	429	426	1	42	154	1	**1778**	**1778**
AUTO (CLASS 1, 2 & 3)	1149	1267	366	366	1	21	139	1	**1655**	**1655**
TOTAL TRUCK VOLUMES	45	42	63	60	0	21	15	0	**123**	**123**
2 - AXLES (CLASS 4 & 5)	19	14	39	38	0	15	9	0	**67**	**67**
3 - AXLES (CLASS 6 & 8)	11	12	6	4	0	3	2	0	**19**	**19**
4 - AXLES (CLASS 7 & 8)	4	3	9	8	0	2	0	0	**13**	**13**
5 - AXLES (CLASS 9 & 11)	11	13	9	10	0	1	4	0	**24**	**24**
>5-AXLES (CLASS 10,12 &13)	0	0	0	0	0	0	0	0	**0**	**0**

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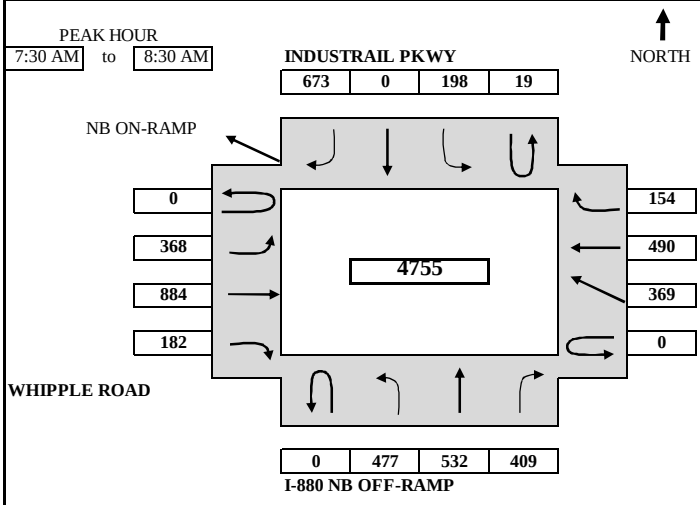
B.A.Y.M.E.T.R.I.C.S.

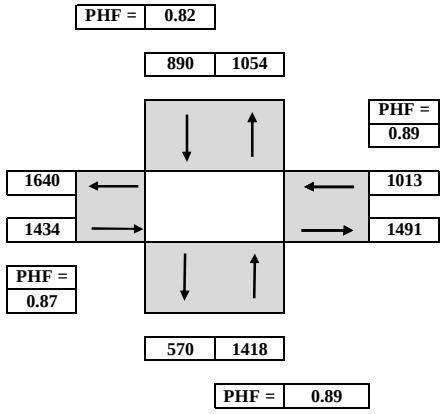
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNT IN HAYWARD**		**SURVEY DATE:**	**10/12/2016**	**DAY:** **WEDNESDAY**
N-S APPROACH:	**I-880 NB OFF-RAMP** - **INDUSTRAIL PKWY**		**SURVEY TIME:**	**7:00 AM**	**TO** **9:00 AM**
E-W APPROACH:	**WHIPPLE ROAD**		**JURISDICTION:**	**HAYWARD**	**FILE:** **3610088**

PEAK HOUR 7:30 AM to 8:30 AM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	ONRAMP	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	ONRAMP	U-TURN	ONRAMP	THRU	RIGHT	
SURVEY DATA																			
7:00 AM	to	7:15 AM		61	69	84	2	39		143		59	107	53		88	118	18	**841**
7:15 AM	to	7:30 AM		149	154	160	7	79		330		114	229	99		174	231	42	**1768**
7:30 AM	to	7:45 AM		257	287	254	13	126		483		199	434	160		265	334	81	**2893**
7:45 AM	to	8:00 AM		385	434	376	17	189		671		292	700	212		366	479	114	**4235**
8:00 AM	to	8:15 AM		510	575	472	23	246		880		394	934	249		462	626	156	**5527**
8:15 AM	to	8:30 AM		626	686	569	26	277		1003		482	1113	281		543	721	196	**6523**
8:30 AM	to	8:45 AM		724	773	642	30	310		1112		551	1306	321		632	818	233	**7452**
8:45 AM	to	9:00 AM		799	857	733	33	337		1251		623	1439	364		724	903	267	**8330**
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	61	69	84	2	39	0	143	0	59	107	53	0	88	118	18	**841**
7:15 AM	to	7:30 AM	0	88	85	76	5	40	0	187	0	55	122	46	0	86	113	24	**927**
7:30 AM	to	7:45 AM	0	108	133	94	6	47	0	153	0	85	205	61	0	91	103	39	**1125**
7:45 AM	to	8:00 AM	0	128	147	122	4	63	0	188	0	93	266	52	0	101	145	33	**1342**
8:00 AM	to	8:15 AM	0	125	141	96	6	57	0	209	0	102	234	37	0	96	147	42	**1292**
8:15 AM	to	8:30 AM	0	116	111	97	3	31	0	123	0	88	179	32	0	81	95	40	**996**
8:30 AM	to	8:45 AM	0	98	87	73	4	33	0	109	0	69	193	40	0	89	97	37	**929**
8:45 AM	to	9:00 AM	0	75	84	91	3	27	0	139	0	72	133	43	0	92	85	34	**878**
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	385	434	376	17	189	0	671	0	292	700	212	0	366	479	114	**4235**
7:15 AM	to	8:15 AM	0	449	506	388	21	207	0	737	0	335	827	196	0	374	508	138	**4686**
7:30 AM	to	8:30 AM	0	477	532	409	19	198	0	673	0	368	884	182	0	369	490	154	**4755**
7:45 AM	to	8:45 AM	0	467	486	388	17	184	0	629	0	352	872	161	0	367	484	152	**4559**
8:00 AM	to	9:00 AM	0	414	423	357	16	148	0	580	0	331	739	152	0	358	424	153	**4095**

PEAK HOUR SUMMARY

7:30 AM to 8:30 AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	ONRAMP	WBT	WBR	
VOLUME	0	477	532	409	19	198	0	673	0	368	884	182	0	369	490	154	4755
PHF BY MOVEMENT	0.00	0.93	0.90	0.84	0.79	0.79	0.00	0.81	0.00	0.90	0.83	0.75	0.00	0.91	0.83	0.92	OVERALL
PHF BY APPROACH	0.89				0.82				0.87				0.89				**0.89**
PEDESTRIAN																	**18**
BICYCLE																	**0**

PEAK HOUR 7:30 AM 8:30 AM	INTERSECTION ARRIVAL & DEPARTURE VOLUMES								INTERSECTION TOTAL	
	NORTH BOUND		SOUTH BOUND		EAST BOUND		WEST BOUND			
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
TOTAL VOLUME	1418	1054	890	570	1434	1491	1013	1640	**4755**	**4755**
AUTO (CLASS 1, 2 & 3)	1350	1025	841	472	1301	1351	842	1486	**4334**	**4334**
TOTAL TRUCK VOLUMES	68	48	49	79	133	140	171	154	**421**	**421**
2 - AXLES (CLASS 4 & 5)	43	34	35	48	81	86	104	95	**263**	**263**
3 - AXLES (CLASS 6 & 8)	10	5	3	8	15	17	21	19	**49**	**49**
4 - AXLES (CLASS 7 & 8)	3	1	1	3	8	7	4	5	**16**	**16**
5 - AXLES (CLASS 9 & 11)	12	8	10	20	29	30	42	35	**93**	**93**
>5-AXLES (CLASS 10,12 &13)	0	0	0	0	0	0	0	0	**0**	**0**

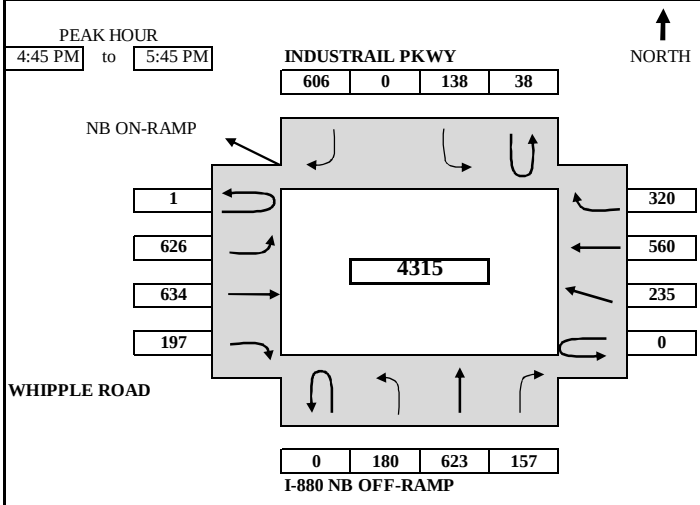
TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

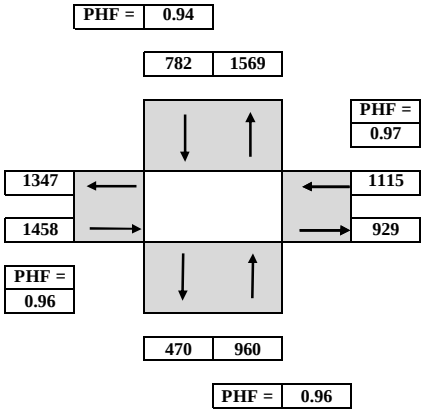
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNT IN HAYWARD**		**SURVEY DATE:**	**10/12/2016**	**DAY: WEDNESDAY**
N-S APPROACH:	**I-880 NB OFF-RAMP - INDUSTRAIL PKWY**		**SURVEY TIME:**	**4:00 PM**	**TO 6:00 PM**
E-W APPROACH:	**WHIPPLE ROAD**		**JURISDICTION:**	**HAYWARD**	**FILE: 3610088**

PEAK HOUR 4:45 PM to 5:45 PM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	ONRAMP	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	ONRAMP	U-TURN	ONRAMP	THRU	RIGHT	
SURVEY DATA																			
4:00 PM	to	4:15 PM		36	161	41	5	34		124	0	139	121	51		61	132	75	**980**
4:15 PM	to	4:30 PM		72	317	77	11	72		268	0	288	281	100		119	273	149	**2027**
4:30 PM	to	4:45 PM		119	466	116	23	103		410	0	422	465	162		182	425	216	**3109**
4:45 PM	to	5:00 PM		153	613	163	34	135		544	0	581	614	204		238	578	279	**4136**
5:00 PM	to	5:15 PM		200	765	204	39	174		709	1	738	769	250		297	719	367	**5232**
5:15 PM	to	5:30 PM		249	928	234	48	206		856	1	891	926	308		360	853	451	**6311**
5:30 PM	to	5:45 PM		299	1089	273	61	241		1016	1	1048	1099	359		417	985	536	**7424**
5:45 PM	to	6:00 PM		340	1257	308	69	266		1173	2	1186	1225	422		477	1114	598	**8437**
TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	36	161	41	5	34	0	124	0	139	121	51	0	61	132	75	**980**
4:15 PM	to	4:30 PM	0	36	156	36	6	38	0	144	0	149	160	49	0	58	141	74	**1047**
4:30 PM	to	4:45 PM	0	47	149	39	12	31	0	142	0	134	184	62	0	63	152	67	**1082**
4:45 PM	to	5:00 PM	0	34	147	47	11	32	0	134	0	159	149	42	0	56	153	63	**1027**
5:00 PM	to	5:15 PM	0	47	152	41	5	39	0	165	1	157	155	46	0	59	141	88	**1096**
5:15 PM	to	5:30 PM	0	49	163	30	9	32	0	147	0	153	157	58	0	63	134	84	**1079**
5:30 PM	to	5:45 PM	0	50	161	39	13	35	0	160	0	157	173	51	0	57	132	85	**1113**
5:45 PM	to	6:00 PM	0	41	168	35	8	25	0	157	1	138	126	63	0	60	129	62	**1013**
HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	153	613	163	34	135	0	544	0	581	614	204	0	238	578	279	**4136**
4:15 PM	to	5:15 PM	0	164	604	163	34	140	0	585	1	599	648	199	0	236	587	292	**4252**
4:30 PM	to	5:30 PM	0	177	611	157	37	134	0	588	1	603	645	208	0	241	580	302	**4284**
4:45 PM	to	5:45 PM	0	180	623	157	38	138	0	606	1	626	634	197	0	235	560	320	**4315**
5:00 PM	to	6:00 PM	0	187	644	145	35	131	0	629	2	605	611	218	0	239	536	319	**4301**

PEAK HOUR SUMMARY

4:45 PM to 5:45 PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME	0	180	623	157	38	138	0	606	1	626	634	197	0	235	560	320	4315
PHF BY MOVEMENT	0.00	0.90	0.96	0.84	0.73	0.88	0.00	0.92	0.25	0.98	0.92	0.85	0.00	0.93	0.92	0.91	OVERALL
PHF BY APPROACH	0.96				0.94				0.96				0.97				**0.97**
PEDESTRIAN																	**15**
BICYCLE																	**1**

PEAK HOUR 4:45 PM 5:45 PM	INTERSECTION ARRIVAL & DEPARTURE VOLUMES								INTERSECTION TOTAL	
	NORTH BOUND		SOUTH BOUND		EAST BOUND		WEST BOUND			
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
TOTAL VOLUME	960	1569	782	470	1458	929	1115	1347	**4315**	**4315**
AUTO (CLASS 1, 2 & 3)	886	1542	762	410	1404	860	1045	1285	**4097**	**4097**
TOTAL TRUCK VOLUMES	74	65	20	22	54	69	70	62	**218**	**218**
2 - AXLES (CLASS 4 & 5)	47	41	15	9	33	47	36	34	**131**	**131**
3 - AXLES (CLASS 6 & 8)	11	11	0	0	4	4	5	5	**20**	**20**
4 - AXLES (CLASS 7 & 8)	4	4	2	2	3	4	8	7	**17**	**17**
5 - AXLES (CLASS 9 & 11)	11	9	3	11	14	13	21	16	**49**	**49**
>5-AXLES (CLASS 10,12 &13)	1	0	0	0	0	1	0	0	**1**	**1**

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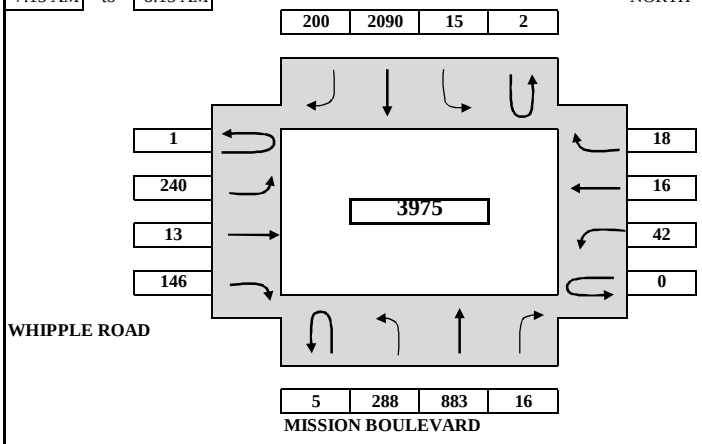
B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

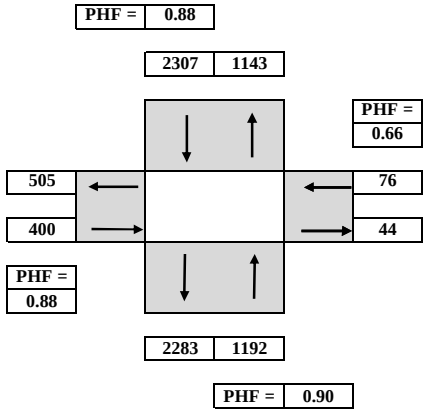
PROJECT:	**TRAFFIC COUNT IN HAYWARD**	**SURVEY DATE:**	**10/12/2016**	**DAY:**	**WEDNESDAY**
N-S APPROACH:	**MISSION BOULEVARD**	**SURVEY TIME:**	**7:00 AM**	**TO**	**9:00 AM**
E-W APPROACH:	**WHIPPLE ROAD**	**JURISDICTION:**	**HAYWARD**	**FILE:**	**3610088**

PEAK HOUR 7:15 AM to 8:15 AM

NORTH



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
7:00 AM	to	7:15 AM	1	49	152	2	3	4	550	32	0	28	0	38		10	3	6	**878**
7:15 AM	to	7:30 AM	1	89	349	3	3	6	1077	72	0	58	2	81		18	8	8	**1775**
7:30 AM	to	7:45 AM	1	180	577	6	5	8	1531	121	0	125	6	123		32	14	11	**2740**
7:45 AM	to	8:00 AM	3	252	798	13	5	10	2130	178	0	194	11	155		46	18	22	**3835**
8:00 AM	to	8:15 AM	6	337	1035	18	5	19	2640	232	1	268	13	184		52	19	24	**4853**
8:15 AM	to	8:30 AM	7	389	1258	23	5	21	3015	286	4	331	17	208		59	19	27	**5669**
8:30 AM	to	8:45 AM	8	458	1453	28	5	27	3451	337	6	398	21	258		63	20	29	**6562**
8:45 AM	to	9:00 AM	9	525	1653	30	5	29	3798	376	6	453	25	296		73	24	32	**7334**
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	1	49	152	2	3	4	550	32	0	28	0	38	0	10	3	6	**878**
7:15 AM	to	7:30 AM	0	40	197	1	0	2	527	40	0	30	2	43	0	8	5	2	**897**
7:30 AM	to	7:45 AM	0	91	228	3	2	2	454	49	0	67	4	42	0	14	6	3	**965**
7:45 AM	to	8:00 AM	2	72	221	7	0	2	599	57	0	69	5	32	0	14	4	11	**1095**
8:00 AM	to	8:15 AM	3	85	237	5	0	9	510	54	1	74	2	29	0	6	1	2	**1018**
8:15 AM	to	8:30 AM	1	52	223	5	0	2	375	54	3	63	4	24	0	7	0	3	**816**
8:30 AM	to	8:45 AM	1	69	195	5	0	6	436	51	2	67	4	50	0	4	1	2	**893**
8:45 AM	to	9:00 AM	1	67	200	2	0	2	347	39	0	55	4	38	0	10	4	3	**772**
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	3	252	798	13	5	10	2130	178	0	194	11	155	0	46	18	22	**3835**
7:15 AM	to	8:15 AM	5	288	883	16	2	15	2090	200	1	240	13	146	0	42	16	18	**3975**
7:30 AM	to	8:30 AM	6	300	909	20	2	15	1938	214	4	273	15	127	0	41	11	19	**3894**
7:45 AM	to	8:45 AM	7	278	876	22	0	19	1920	216	6	273	15	135	0	31	6	18	**3822**
8:00 AM	to	9:00 AM	6	273	855	17	0	19	1668	198	6	259	14	141	0	27	6	10	**3499**

PEAK HOUR SUMMARY

7:15 AM to 8:15 AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME	5	288	883	16	2	15	2090	200	1	240	13	146	0	42	16	18	3975
PHF BY MOVEMENT	0.42	0.79	0.93	0.57	0.25	0.42	0.87	0.88	0.25	0.81	0.65	0.85	0.00	0.75	0.67	0.41	OVERALL
PHF BY APPROACH	0.90				0.88				0.88				0.66				**0.91**
PEDESTRIAN																	**21**
BICYCLE																	**4**

PEAK HOUR 7:15 AM 8:15 AM	INTERSECTION ARRIVAL & DEPARTURE VOLUMES								INTERSECTION TOTAL	
	NORTH BOUND		SOUTH BOUND		EAST BOUND		WEST BOUND			
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
TOTAL VOLUME	1192	1143	2307	2283	400	44	76	505	**3975**	**3975**
AUTO (CLASS 1, 2 & 3)	1154	1112	2247	2209	370	35	76	491	**3847**	**3847**
TOTAL TRUCK VOLUMES	38	31	60	74	30	9	0	14	**128**	**128**
2 - AXLES (CLASS 4 & 5)	32	26	48	59	20	3	0	12	**100**	**100**
3 - AXLES (CLASS 6 & 8)	3	3	2	5	4	0	0	1	**9**	**9**
4 - AXLES (CLASS 7 & 8)	0	0	2	2	0	0	0	0	**2**	**2**
5 - AXLES (CLASS 9 & 11)	3	2	8	8	6	6	0	1	**17**	**17**
>5-AXLES (CLASS 10,12 &13)	0	0	0	0	0	0	0	0	**0**	**0**

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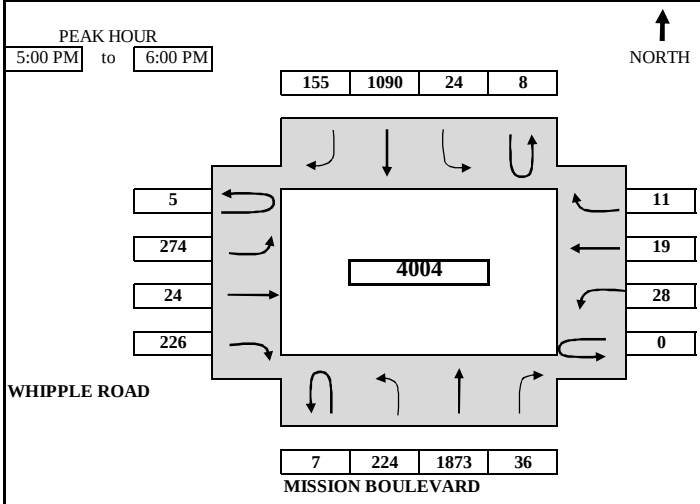
B.A.Y.M.E.T.R.I.C.S.

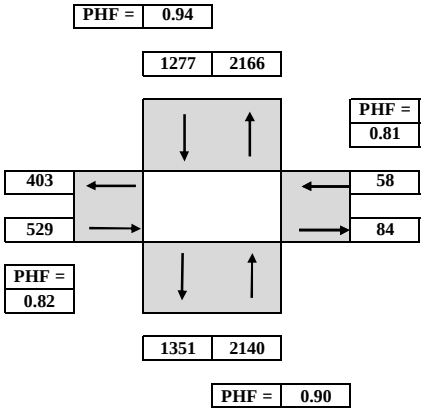
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNT IN HAYWARD**	**SURVEY DATE:**	**10/12/2016**	**DAY:**	**WEDNESDAY**
N-S APPROACH:	**MISSION BOULEVARD**	**SURVEY TIME:**	**4:00 PM**	**TO**	**6:00 PM**
E-W APPROACH:	**WHIPPLE ROAD**	**JURISDICTION:**	**HAYWARD**	**FILE:**	**3610088**

PEAK HOUR 5:00 PM to 6:00 PM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
4:00 PM	to	4:15 PM	1	38	450	3	2	5	242	41	2	65	4	51		1	2	2	**909**
4:15 PM	to	4:30 PM	3	73	886	9	5	12	481	74	2	133	9	105		3	4	2	**1801**
4:30 PM	to	4:45 PM	5	117	1325	14	7	17	711	115	4	186	10	156		8	6	6	**2687**
4:45 PM	to	5:00 PM	9	167	1787	18	10	23	968	147	4	285	13	200		14	8	7	**3660**
5:00 PM	to	5:15 PM	11	206	2328	28	12	30	1257	188	6	371	18	268		21	11	9	**4764**
5:15 PM	to	5:30 PM	12	252	2765	35	14	35	1495	221	6	431	24	324		29	14	11	**5668**
5:30 PM	to	5:45 PM	13	322	3202	43	15	41	1775	262	8	495	30	378		35	21	16	**6656**
5:45 PM	to	6:00 PM	16	391	3660	54	18	47	2058	302	9	559	37	426		42	27	18	**7664**
TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	1	38	450	3	2	5	242	41	2	65	4	51	0	1	2	2	**909**
4:15 PM	to	4:30 PM	2	35	436	6	3	7	239	33	0	68	5	54	0	2	2	0	**892**
4:30 PM	to	4:45 PM	2	44	439	5	2	5	230	41	2	53	1	51	0	5	2	4	**886**
4:45 PM	to	5:00 PM	4	50	462	4	3	6	257	32	0	99	3	44	0	6	2	1	**973**
5:00 PM	to	5:15 PM	2	39	541	10	2	7	289	41	2	86	5	68	0	7	3	2	**1104**
5:15 PM	to	5:30 PM	1	46	437	7	2	5	238	33	0	60	6	56	0	8	3	2	**904**
5:30 PM	to	5:45 PM	1	70	437	8	1	6	280	41	2	64	6	54	0	6	7	5	**988**
5:45 PM	to	6:00 PM	3	69	458	11	3	6	283	40	1	64	7	48	0	7	6	2	**1008**
HOURLY TOTALS																			
4:00 PM	to	5:00 PM	9	167	1787	18	10	23	968	147	4	285	13	200	0	14	8	7	**3660**
4:15 PM	to	5:15 PM	10	168	1878	25	10	25	1015	147	4	306	14	217	0	20	9	7	**3855**
4:30 PM	to	5:30 PM	9	179	1879	26	9	23	1014	147	4	298	15	219	0	26	10	9	**3867**
4:45 PM	to	5:45 PM	8	205	1877	29	8	24	1064	147	4	309	20	222	0	27	15	10	**3969**
5:00 PM	to	6:00 PM	7	224	1873	36	8	24	1090	155	5	274	24	226	0	28	19	11	**4004**

PEAK HOUR SUMMARY

5:00 PM to 6:00 PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME	7	224	1873	36	8	24	1090	155	5	274	24	226	0	28	19	11	4004
PHF BY MOVEMENT	0.58	0.80	0.87	0.82	0.67	0.86	0.94	0.95	0.63	0.80	0.86	0.83	0.00	0.88	0.68	0.55	OVERALL
PHF BY APPROACH	0.90				0.94				0.82				0.81				**0.91**
PEDESTRIAN																	**46**
BICYCLE																	**4**

PEAK HOUR 5:00 PM 6:00 PM	INTERSECTION ARRIVAL & DEPARTURE VOLUMES								INTERSECTION TOTAL	
	NORTH BOUND		SOUTH BOUND		EAST BOUND		WEST BOUND			
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
TOTAL VOLUME	2140	2166	1277	1351	529	84	58	403	**4004**	**4004**
AUTO (CLASS 1, 2 & 3)	2107	2138	1263	1336	527	84	58	397	**3955**	**3955**
TOTAL TRUCK VOLUMES	33	28	14	15	2	0	0	6	**49**	**49**
2 - AXLES (CLASS 4 & 5)	26	23	11	12	2	0	0	4	**39**	**39**
3 - AXLES (CLASS 6 & 8)	4	2	0	0	0	0	0	2	**4**	**4**
4 - AXLES (CLASS 7 & 8)	0	0	1	1	0	0	0	0	**1**	**1**
5 - AXLES (CLASS 9 & 11)	3	3	2	2	0	0	0	0	**5**	**5**
>5-AXLES (CLASS 10,12 &13)	0	0	0	0	0	0	0	0	**0**	**0**

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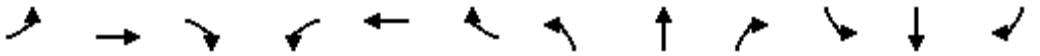
APPENDIX C
LEVEL OF SERVICE CALCULATION SHEETS
for
WITH PROJECT CONDITIONS

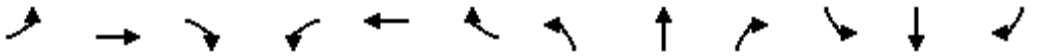


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	683	403	321	1244	37	194	116	128	137	553	195
Future Volume (vph)	68	683	403	321	1244	37	194	116	128	137	553	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	4.5	6.0		5.5	5.5	5.5	5.5	5.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		0.91	0.91	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1752	3438	1419	1719	5047		1149	2786	1397	1752	3435	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.98	1.00	0.95	1.00	
Satd. Flow (perm)	1752	3438	1419	1719	5047		1149	2786	1397	1752	3435	
Peak-hour factor, PHF	0.92	0.92	0.92	0.86	0.86	0.86	0.89	0.89	0.89	0.88	0.88	0.88
Adj. Flow (vph)	74	742	438	373	1447	43	218	130	144	156	628	222
RTOR Reduction (vph)	0	0	329	0	3	0	0	0	117	0	29	0
Lane Group Flow (vph)	74	742	109	373	1487	0	113	235	27	156	821	0
Confl. Peds. (#/hr)			1			7			6			2
Confl. Bikes (#/hr)			2						2			2
Heavy Vehicles (%)	3%	5%	12%	5%	2%	11%	43%	4%	13%	3%	0%	2%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases			2						4			
Actuated Green, G (s)	7.6	29.0	29.0	24.8	46.2		23.7	23.7	23.7	26.0	26.0	
Effective Green, g (s)	7.6	29.0	29.0	24.8	46.2		23.7	23.7	23.7	26.0	26.0	
Actuated g/C Ratio	0.06	0.23	0.23	0.20	0.37		0.19	0.19	0.19	0.21	0.21	
Clearance Time (s)	4.5	6.0	6.0	4.5	6.0		5.5	5.5	5.5	5.5	5.5	
Vehicle Extension (s)	3.0	6.0	6.0	3.0	3.0		8.0	8.0	8.0	3.0	3.0	
Lane Grp Cap (vph)	106	797	329	341	1865		217	528	264	364	714	
v/s Ratio Prot	0.04	c0.22		c0.22	0.29		c0.10	0.08		0.09	c0.24	
v/s Ratio Perm			0.08						0.02			
v/c Ratio	0.70	0.93	0.33	1.09	0.80		0.52	0.45	0.10	0.43	1.15	
Uniform Delay, d1	57.6	47.0	39.9	50.1	35.2		45.5	44.8	41.9	43.0	49.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	18.2	18.9	2.7	76.3	3.7		8.1	2.5	0.7	3.7	83.4	
Delay (s)	75.7	65.9	42.6	126.4	38.9		53.7	47.4	42.6	46.7	132.9	
Level of Service	E	E	D	F	D		D	D	D	D	F	
Approach Delay (s)		58.4			56.4			47.4			119.5	
Approach LOS		E			E			D			F	

Intersection Summary			
HCM 2000 Control Delay	69.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	0	23	0	63	0	354	30	75	1184	1
Future Volume (vph)	1	0	0	23	0	63	0	354	30	75	1184	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			5.0	5.0		5.0			5.0	
Lane Util. Factor		1.00			1.00	1.00		0.91			0.95	
Frpb, ped/bikes		1.00			1.00	0.98		1.00			1.00	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		1.00			1.00	0.85		0.99			1.00	
Flt Protected		0.95			0.95	1.00		1.00			1.00	
Satd. Flow (prot)		1805			1299	1275		4044			3445	
Flt Permitted		0.95			0.95	1.00		1.00			1.00	
Satd. Flow (perm)		1805			1299	1275		4044			3445	
Peak-hour factor, PHF	0.25	0.25	0.25	0.83	0.83	0.83	0.97	0.97	0.97	0.93	0.93	0.93
Adj. Flow (vph)	4	0	0	28	0	76	0	365	31	81	1273	1
RTOR Reduction (vph)	0	0	0	0	0	72	0	8	0	0	0	0
Lane Group Flow (vph)	0	4	0	0	28	4	0	388	0	0	1355	0
Confl. Peds. (#/hr)						5			4			
Confl. Bikes (#/hr)									1			14
Heavy Vehicles (%)	0%	0%	0%	39%	0%	24%	0%	25%	43%	12%	4%	0%
Turn Type	Split	NA		Split	NA	Perm		NA		Split	NA	
Protected Phases	1	1		2	2			4		3	3	
Permitted Phases						2	4					
Actuated Green, G (s)		1.2			6.7	6.7		20.6			82.5	
Effective Green, g (s)		1.2			6.7	6.7		20.6			82.5	
Actuated g/C Ratio		0.01			0.05	0.05		0.16			0.63	
Clearance Time (s)		4.0			5.0	5.0		5.0			5.0	
Vehicle Extension (s)		2.0			2.0	2.0		6.0			6.0	
Lane Grp Cap (vph)		16			66	65		640			2186	
v/s Ratio Prot		c0.00			c0.02			c0.10			c0.39	
v/s Ratio Perm						0.00						
v/c Ratio		0.25			0.42	0.06		0.61			0.62	
Uniform Delay, d1		64.0			59.8	58.7		50.9			14.3	
Progression Factor		1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2		3.0			1.6	0.1		2.9			1.3	
Delay (s)		66.9			61.4	58.8		53.8			15.6	
Level of Service		E			E	E		D			B	
Approach Delay (s)		66.9			59.5			53.8			15.6	
Approach LOS		E			E			D			B	

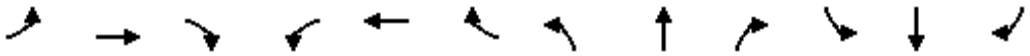
Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	368	884	0	0	859	154	477	532	409	198	0	692
Future Volume (vph)	368	884	0	0	859	154	477	532	409	198	0	692
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	5.4			5.4	5.4	5.1	5.1		4.4		3.7
Lane Util. Factor	0.97	0.95			0.91	1.00	0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			1.00	0.97	1.00	0.99		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00		1.00
Frt	1.00	1.00			1.00	0.85	1.00	0.94		1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95		1.00
Satd. Flow (prot)	3433	3252			4396	1457	1579	3050		1687		2707
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95		1.00
Satd. Flow (perm)	3433	3252			4396	1457	1579	3050		1687		2707
Peak-hour factor, PHF	0.87	0.87	0.87	0.89	0.89	0.89	0.89	0.89	0.89	0.82	0.82	0.82
Adj. Flow (vph)	423	1016	0	0	965	173	536	598	460	241	0	844
RTOR Reduction (vph)	0	0	0	0	0	128	0	47	0	0	0	72
Lane Group Flow (vph)	423	1016	0	0	965	45	482	1065	0	241	0	772
Confl. Peds. (#/hr)						11			7			
Heavy Vehicles (%)	2%	11%	0%	0%	18%	8%	4%	4%	7%	7%	0%	5%
Turn Type	Prot	NA			NA	Perm	Split	NA		Prot		pm+ov
Protected Phases	5	2			6		8	8		7		5
Permitted Phases						6						7
Actuated Green, G (s)	15.0	49.8			31.1	31.1	36.9	36.9		18.4		33.4
Effective Green, g (s)	15.0	49.8			31.1	31.1	36.9	36.9		18.4		33.4
Actuated g/C Ratio	0.12	0.41			0.26	0.26	0.31	0.31		0.15		0.28
Clearance Time (s)	3.7	5.4			5.4	5.4	5.1	5.1		4.4		3.7
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	429	1349			1139	377	485	937		258		753
v/s Ratio Prot	0.12	0.31			c0.22		0.31	c0.35		0.14		c0.13
v/s Ratio Perm						0.03						0.16
v/c Ratio	0.99	0.75			0.85	0.12	0.99	1.14		0.93		1.03
Uniform Delay, d1	52.4	29.9			42.2	34.0	41.4	41.5		50.2		43.3
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00		1.00
Incremental Delay, d2	39.4	3.9			7.9	0.6	39.0	74.6		38.3		39.3
Delay (s)	91.8	33.8			50.1	34.6	80.5	116.1		88.5		82.6
Level of Service	F	C			D	C	F	F		F		F
Approach Delay (s)		50.9			47.7			105.4			83.9	
Approach LOS		D			D			F			F	

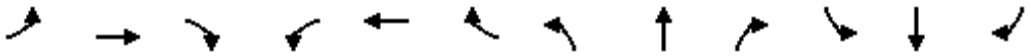
Intersection Summary			
HCM 2000 Control Delay	73.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



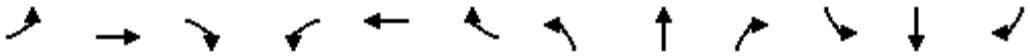
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	241	13	146	42	16	18	293	883	16	17	2090	200
Future Volume (vph)	241	13	146	42	16	18	293	883	16	17	2090	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	4.2		4.2		4.7	4.9		3.7	5.9	
Lane Util. Factor		1.00	1.00		1.00		0.97	0.91		1.00	0.91	
Frpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		0.99	1.00		1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.97		1.00	1.00		1.00	0.99	
Flt Protected		0.95	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1707	1442		1782		3367	5020		1703	4968	
Flt Permitted		0.65	1.00		0.29		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1165	1442		532		3367	5020		1703	4968	
Peak-hour factor, PHF	0.88	0.88	0.88	0.66	0.66	0.66	0.90	0.90	0.90	0.88	0.88	0.88
Adj. Flow (vph)	274	15	166	64	24	27	326	981	18	19	2375	227
RTOR Reduction (vph)	0	0	137	0	8	0	0	1	0	0	11	0
Lane Group Flow (vph)	0	289	29	0	107	0	326	998	0	19	2591	0
Confl. Peds. (#/hr)	9					9						12
Confl. Bikes (#/hr)												3
Heavy Vehicles (%)	3%	54%	12%	0%	0%	0%	4%	3%	6%	6%	3%	1%
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4								
Actuated Green, G (s)		17.0	17.0		17.0		12.5	62.0		4.7	52.2	
Effective Green, g (s)		17.0	17.0		17.0		12.5	62.0		4.7	52.2	
Actuated g/C Ratio		0.18	0.18		0.18		0.13	0.64		0.05	0.54	
Clearance Time (s)		4.2	4.2		4.2		4.7	4.9		3.7	5.9	
Vehicle Extension (s)		0.2	0.2		0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)		205	254		93		436	3225		82	2687	
v/s Ratio Prot							c0.10	0.20		0.01	c0.52	
v/s Ratio Perm		c0.25	0.02		0.20							
v/c Ratio		1.41	0.12		1.15		0.75	0.31		0.23	0.96	
Uniform Delay, d1		39.8	33.4		39.8		40.5	7.7		44.2	21.3	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		210.8	0.1		138.7		6.0	0.0		0.5	10.3	
Delay (s)		250.6	33.5		178.4		46.5	7.7		44.7	31.5	
Level of Service		F	C		F		D	A		D	C	
Approach Delay (s)		171.4			178.4			17.3			31.6	
Approach LOS		F			F			B			C	

Intersection Summary			
HCM 2000 Control Delay	45.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	96.5	Sum of lost time (s)	14.8
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



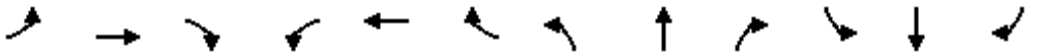
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	327	1196	169	130	798	132	424	592	317	95	145	131
Future Volume (vph)	327	1196	169	130	798	132	424	592	317	95	145	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	4.5	6.0		5.5	5.5	5.5	5.5	5.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		0.91	0.91	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.97	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1787	3539	1215	1736	4954		1507	3364	1529	1736	3200	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.99	1.00	0.95	1.00	
Satd. Flow (perm)	1787	3539	1215	1736	4954		1507	3364	1529	1736	3200	
Peak-hour factor, PHF	0.97	0.97	0.97	0.93	0.93	0.93	0.91	0.91	0.91	0.89	0.89	0.89
Adj. Flow (vph)	337	1233	174	140	858	142	466	651	348	107	163	147
RTOR Reduction (vph)	0	0	81	0	18	0	0	0	226	0	132	0
Lane Group Flow (vph)	337	1233	93	140	982	0	363	754	122	107	178	0
Confl. Peds. (#/hr)			1			7			8			2
Confl. Bikes (#/hr)			1						2			1
Heavy Vehicles (%)	1%	2%	31%	4%	2%	3%	9%	1%	3%	4%	3%	5%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases			2						4			
Actuated Green, G (s)	18.5	41.0	41.0	11.5	34.0		42.3	42.3	42.3	13.7	13.7	
Effective Green, g (s)	18.5	41.0	41.0	11.5	34.0		42.3	42.3	42.3	13.7	13.7	
Actuated g/C Ratio	0.14	0.32	0.32	0.09	0.26		0.33	0.33	0.33	0.11	0.11	
Clearance Time (s)	4.5	6.0	6.0	4.5	6.0		5.5	5.5	5.5	5.5	5.5	
Vehicle Extension (s)	3.0	6.0	6.0	3.0	3.0		8.0	8.0	8.0	3.0	3.0	
Lane Grp Cap (vph)	254	1116	383	153	1295		490	1094	497	182	337	
v/s Ratio Prot	c0.19	c0.35		0.08	0.20		c0.24	0.22		c0.06	0.06	
v/s Ratio Perm			0.08						0.08			
v/c Ratio	1.33	1.10	0.24	0.92	0.76		0.74	0.69	0.25	0.59	0.53	
Uniform Delay, d1	55.8	44.5	33.0	58.8	44.2		39.0	38.1	32.1	55.5	55.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.15	1.15	3.57	1.00	1.00	
Incremental Delay, d2	171.7	60.4	1.5	48.1	4.2		9.1	3.3	1.1	4.8	1.5	
Delay (s)	227.4	104.9	34.5	106.8	48.4		54.0	47.1	115.9	60.2	56.6	
Level of Service	F	F	C	F	D		D	D	F	E	E	
Approach Delay (s)		121.6			55.6			65.2			57.5	
Approach LOS		F			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	82.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	1	26	0	128	0	1181	13	29	399	1
Future Volume (vph)	0	0	1	26	0	128	0	1181	13	29	399	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			5.0	5.0		5.0			5.0	
Lane Util. Factor		1.00			1.00	1.00		0.91			0.95	
Frpb, ped/bikes		1.00			1.00	0.98		1.00			1.00	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.86			1.00	0.85		1.00			1.00	
Flt Protected		1.00			0.95	1.00		1.00			1.00	
Satd. Flow (prot)		1644			1378	1508		4986			3136	
Flt Permitted		1.00			0.95	1.00		1.00			1.00	
Satd. Flow (perm)		1644			1378	1508		4986			3136	
Peak-hour factor, PHF	0.25	0.25	0.25	0.90	0.90	0.90	0.93	0.93	0.93	0.98	0.98	0.98
Adj. Flow (vph)	0	0	4	29	0	142	0	1270	14	30	407	1
RTOR Reduction (vph)	0	4	0	0	0	133	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	29	9	0	1284	0	0	438	0
Confl. Peds. (#/hr)						4			7			2
Confl. Bikes (#/hr)									12			1
Heavy Vehicles (%)	0%	0%	0%	31%	0%	5%	0%	3%	77%	38%	13%	0%
Turn Type		NA		Split	NA	Perm		NA		Split	NA	
Protected Phases	1	1		2	2			4		3	3	
Permitted Phases						2	4					
Actuated Green, G (s)		1.2			8.3	8.3		75.7			25.8	
Effective Green, g (s)		1.2			8.3	8.3		75.7			25.8	
Actuated g/C Ratio		0.01			0.06	0.06		0.58			0.20	
Clearance Time (s)		4.0			5.0	5.0		5.0			5.0	
Vehicle Extension (s)		2.0			2.0	2.0		6.0			6.0	
Lane Grp Cap (vph)		15			87	96		2903			622	
v/s Ratio Prot		c0.00			c0.02			c0.26			c0.14	
v/s Ratio Perm						0.01						
v/c Ratio		0.00			0.33	0.09		0.44			0.70	
Uniform Delay, d1		63.8			58.2	57.3		15.3			48.5	
Progression Factor		1.00			1.00	1.00		1.00			1.13	
Incremental Delay, d2		0.0			0.8	0.2		0.5			4.5	
Delay (s)		63.8			59.0	57.5		15.8			59.2	
Level of Service		E			E	E		B			E	
Approach Delay (s)		63.8			57.7			15.8			59.2	
Approach LOS		E			E			B			E	

Intersection Summary			
HCM 2000 Control Delay	29.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



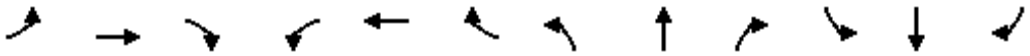
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	627	634	0	0	795	320	180	623	157	138	0	644
Future Volume (vph)	627	634	0	0	795	320	180	623	157	138	0	644
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	5.4			5.4	5.4	5.1	5.1		4.4		3.7
Lane Util. Factor	0.97	0.95			0.91	1.00	0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			1.00	0.97	1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00		1.00
Frt	1.00	1.00			1.00	0.85	1.00	0.97		1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95		1.00
Satd. Flow (prot)	3433	3406			4848	1514	1579	3090		1736		2787
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95		1.00
Satd. Flow (perm)	3433	3406			4848	1514	1579	3090		1736		2787
Peak-hour factor, PHF	0.96	0.96	0.96	0.97	0.97	0.97	0.96	0.96	0.96	0.94	0.94	0.94
Adj. Flow (vph)	653	660	0	0	820	330	188	649	164	147	0	685
RTOR Reduction (vph)	0	0	0	0	0	195	0	15	0	0	0	292
Lane Group Flow (vph)	653	660	0	0	820	135	169	817	0	147	0	393
Confl. Peds. (#/hr)						10			5			
Heavy Vehicles (%)	2%	6%	0%	0%	7%	4%	4%	6%	17%	4%	0%	2%
Turn Type	Prot	NA			NA	Perm	Split	NA		Prot		pm+ov
Protected Phases	5	2			6		8	8		7		5
Permitted Phases						6						7
Actuated Green, G (s)	26.6	62.5			32.2	32.2	37.4	37.4		15.2		41.8
Effective Green, g (s)	26.6	62.5			32.2	32.2	37.4	37.4		15.2		41.8
Actuated g/C Ratio	0.20	0.48			0.25	0.25	0.29	0.29		0.12		0.32
Clearance Time (s)	3.7	5.4			5.4	5.4	5.1	5.1		4.4		3.7
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	702	1637			1200	375	454	888		202		896
v/s Ratio Prot	c0.19	0.19			c0.17		0.11	c0.26		c0.08		0.09
v/s Ratio Perm						0.09						0.05
v/c Ratio	0.93	0.40			0.68	0.36	0.37	0.92		0.73		0.44
Uniform Delay, d1	50.8	21.7			44.3	40.4	36.9	44.9		55.4		34.8
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00		1.00
Incremental Delay, d2	18.9	0.7			3.2	2.7	0.5	14.5		12.3		0.3
Delay (s)	69.7	22.5			47.4	43.1	37.5	59.4		67.7		35.2
Level of Service	E	C			D	D	D	E		E		D
Approach Delay (s)		46.0			46.2			55.7			40.9	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	47.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	279	24	226	28	19	11	231	1873	36	32	1090	155
Future Volume (vph)	279	24	226	28	19	11	231	1873	36	32	1090	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	4.2		4.2		4.7	4.9		3.7	5.9	
Lane Util. Factor		1.00	1.00		1.00		0.97	0.91		1.00	0.91	
Frpb, ped/bikes		1.00	1.00		0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		0.99	1.00		1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.97		1.00	1.00		1.00	0.98	
Flt Protected		0.96	1.00		0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1792	1615		1796		3400	5120		1805	5020	
Flt Permitted		0.73	1.00		0.34		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1371	1615		632		3400	5120		1805	5020	
Peak-hour factor, PHF	0.82	0.82	0.82	0.81	0.81	0.81	0.90	0.90	0.90	0.94	0.94	0.94
Adj. Flow (vph)	340	29	276	35	23	14	257	2081	40	34	1160	165
RTOR Reduction (vph)	0	0	211	0	6	0	0	1	0	0	18	0
Lane Group Flow (vph)	0	369	65	0	66	0	257	2120	0	34	1307	0
Confl. Peds. (#/hr)	21					21			2			23
Confl. Bikes (#/hr)									2			2
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	1%	0%	0%	1%	1%
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4								
Actuated Green, G (s)		17.1	17.1		17.1		11.4	50.4		6.7	43.7	
Effective Green, g (s)		17.1	17.1		17.1		11.4	50.4		6.7	43.7	
Actuated g/C Ratio		0.20	0.20		0.20		0.13	0.58		0.08	0.50	
Clearance Time (s)		4.2	4.2		4.2		4.7	4.9		3.7	5.9	
Vehicle Extension (s)		0.2	0.2		0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)		269	317		124		445	2966		139	2521	
v/s Ratio Prot							c0.08	c0.41		0.02	0.26	
v/s Ratio Perm		c0.27	0.04		0.10							
v/c Ratio		1.37	0.20		0.53		0.58	0.71		0.24	0.52	
Uniform Delay, d1		35.0	29.3		31.3		35.5	13.1		37.8	14.6	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		189.1	0.1		1.9		1.1	0.7		0.3	0.1	
Delay (s)		224.1	29.4		33.2		36.7	13.8		38.1	14.6	
Level of Service		F	C		C		D	B		D	B	
Approach Delay (s)		140.8			33.2			16.3			15.2	
Approach LOS		F			C			B			B	

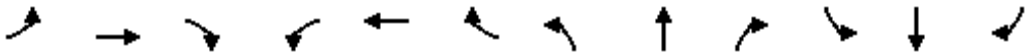
Intersection Summary			
HCM 2000 Control Delay	34.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	14.8
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	863	0	0	674	1	3	0	2	3	0	6
Future Volume (Veh/h)	0	863	0	0	674	1	3	0	2	3	0	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.88	0.88	0.88	0.31	0.31	0.31	0.56	0.56	0.56
Hourly flow rate (vph)	0	908	0	0	766	1	10	0	6	5	0	11
Pedestrians								7				
Lane Width (ft)								12.0				
Walking Speed (ft/s)								3.5				
Percent Blockage								1				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	767			915			1692	1682	915	1680	1682	766
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	767			915			1692	1682	915	1680	1682	766
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			86	100	98	93	100	97
cM capacity (veh/h)	856			748			72	95	331	74	95	406

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	908	767	16	16
Volume Left	0	0	10	5
Volume Right	0	1	6	11
cSH	856	748	101	169
Volume to Capacity	0.00	0.00	0.16	0.09
Queue Length 95th (ft)	0	0	13	8
Control Delay (s)	0.0	0.0	47.0	28.5
Lane LOS			E	D
Approach Delay (s)	0.0	0.0	47.0	28.5
Approach LOS			E	D

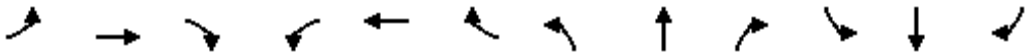
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	665	11	3	1171	2	0	0	2	3	0	2
Future Volume (Veh/h)	8	665	11	3	1171	2	0	0	2	3	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.50	0.50	0.50	0.63	0.63	0.63
Hourly flow rate (vph)	9	739	12	3	1362	2	0	0	4	5	0	3
Pedestrians								8				
Lane Width (ft)								12.0				
Walking Speed (ft/s)								3.5				
Percent Blockage								1				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1364			759			2143	2141	753	2136	2146	1363
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1364			759			2143	2141	753	2136	2146	1363
tC, single (s)	4.5			4.1			7.1	6.5	6.2	7.4	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.5			2.2			3.5	4.0	3.3	3.8	4.0	3.3
p0 queue free %	98			100			100	100	99	82	100	98
cM capacity (veh/h)	404			855			34	48	410	28	47	183

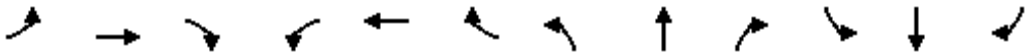
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	760	1367	4	8
Volume Left	9	3	0	5
Volume Right	12	2	4	3
cSH	404	855	410	41
Volume to Capacity	0.02	0.00	0.01	0.19
Queue Length 95th (ft)	2	0	1	16
Control Delay (s)	0.7	0.2	13.9	112.7
Lane LOS	A	A	B	F
Approach Delay (s)	0.7	0.2	13.9	112.7
Approach LOS			B	F

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	73.5%	ICU Level of Service	D	
Analysis Period (min)	15			



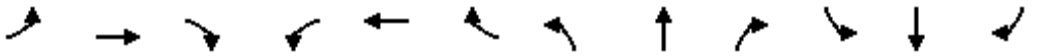
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	683	429	338	1244	37	204	118	134	137	559	195
Future Volume (vph)	68	683	429	338	1244	37	204	118	134	137	559	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	4.5	6.0		5.5	5.5	5.5	5.5	5.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		0.91	0.91	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1752	3438	1419	1719	5047		1149	2780	1397	1752	3437	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.98	1.00	0.95	1.00	
Satd. Flow (perm)	1752	3438	1419	1719	5047		1149	2780	1397	1752	3437	
Peak-hour factor, PHF	0.92	0.92	0.92	0.86	0.86	0.86	0.89	0.89	0.89	0.88	0.88	0.88
Adj. Flow (vph)	74	742	466	393	1447	43	229	133	151	156	635	222
RTOR Reduction (vph)	0	0	327	0	3	0	0	0	122	0	28	0
Lane Group Flow (vph)	74	742	139	393	1487	0	119	243	29	156	829	0
Confl. Peds. (#/hr)			1			7			6			2
Confl. Bikes (#/hr)			2						2			2
Heavy Vehicles (%)	3%	5%	12%	5%	2%	11%	43%	4%	13%	3%	0%	2%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases			2						4			
Actuated Green, G (s)	7.5	29.0	29.0	24.5	46.0		24.0	24.0	24.0	26.0	26.0	
Effective Green, g (s)	7.5	29.0	29.0	24.5	46.0		24.0	24.0	24.0	26.0	26.0	
Actuated g/C Ratio	0.06	0.23	0.23	0.20	0.37		0.19	0.19	0.19	0.21	0.21	
Clearance Time (s)	4.5	6.0	6.0	4.5	6.0		5.5	5.5	5.5	5.5	5.5	
Vehicle Extension (s)	3.0	6.0	6.0	3.0	3.0		8.0	8.0	8.0	3.0	3.0	
Lane Grp Cap (vph)	105	797	329	336	1857		220	533	268	364	714	
v/s Ratio Prot	0.04	c0.22		c0.23	0.29		c0.10	0.09		0.09	c0.24	
v/s Ratio Perm			0.10						0.02			
v/c Ratio	0.70	0.93	0.42	1.17	0.80		0.54	0.46	0.11	0.43	1.16	
Uniform Delay, d1	57.7	47.0	40.9	50.2	35.4		45.5	44.7	41.7	43.0	49.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	19.3	18.9	3.9	103.6	3.7		8.6	2.6	0.8	3.7	87.7	
Delay (s)	77.0	65.9	44.8	153.8	39.1		54.2	47.4	42.4	46.7	137.2	
Level of Service	E	E	D	F	D		D	D	D	D	F	
Approach Delay (s)		58.9			63.1			47.5			123.2	
Approach LOS		E			E			D			F	

Intersection Summary			
HCM 2000 Control Delay	73.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	0	23	0	81	0	354	30	123	1184	1
Future Volume (vph)	1	0	0	23	0	81	0	354	30	123	1184	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			5.0	5.0		5.0			5.0	
Lane Util. Factor		1.00			1.00	1.00		0.91			0.95	
Frpb, ped/bikes		1.00			1.00	0.98		1.00			1.00	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		1.00			1.00	0.85		0.99			1.00	
Flt Protected		0.95			0.95	1.00		1.00			1.00	
Satd. Flow (prot)		1805			1299	1275		4044			3430	
Flt Permitted		0.95			0.95	1.00		1.00			1.00	
Satd. Flow (perm)		1805			1299	1275		4044			3430	
Peak-hour factor, PHF	0.25	0.25	0.25	0.83	0.83	0.83	0.97	0.97	0.97	0.93	0.93	0.93
Adj. Flow (vph)	4	0	0	28	0	98	0	365	31	132	1273	1
RTOR Reduction (vph)	0	0	0	0	0	92	0	8	0	0	0	0
Lane Group Flow (vph)	0	4	0	0	28	6	0	388	0	0	1406	0
Confl. Peds. (#/hr)						5			4			
Confl. Bikes (#/hr)									1			14
Heavy Vehicles (%)	0%	0%	0%	39%	0%	24%	0%	25%	43%	12%	4%	0%
Turn Type	Split	NA		Split	NA	Perm		NA		Split	NA	
Protected Phases	1	1		2	2			4		3	3	
Permitted Phases						2	4					
Actuated Green, G (s)		1.2			8.3	8.3		20.6			80.9	
Effective Green, g (s)		1.2			8.3	8.3		20.6			80.9	
Actuated g/C Ratio		0.01			0.06	0.06		0.16			0.62	
Clearance Time (s)		4.0			5.0	5.0		5.0			5.0	
Vehicle Extension (s)		2.0			2.0	2.0		6.0			6.0	
Lane Grp Cap (vph)		16			82	81		640			2134	
v/s Ratio Prot		c0.00			c0.02			c0.10			c0.41	
v/s Ratio Perm						0.00						
v/c Ratio		0.25			0.34	0.08		0.61			0.66	
Uniform Delay, d1		64.0			58.2	57.2		50.9			15.7	
Progression Factor		1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2		3.0			0.9	0.1		2.9			1.6	
Delay (s)		66.9			59.1	57.4		53.8			17.3	
Level of Service		E			E	E		D			B	
Approach Delay (s)		66.9			57.8			53.8			17.3	
Approach LOS		E			E			D			B	

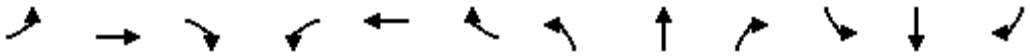
Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	368	884	0	0	863	154	477	532	419	198	0	692
Future Volume (vph)	368	884	0	0	863	154	477	532	419	198	0	692
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	5.4			5.4	5.4	5.1	5.1		4.4		3.7
Lane Util. Factor	0.97	0.95			0.91	1.00	0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			1.00	0.97	1.00	0.99		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00		1.00
Frt	1.00	1.00			1.00	0.85	1.00	0.94		1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95		1.00
Satd. Flow (prot)	3433	3252			4396	1457	1579	3047		1687		2707
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95		1.00
Satd. Flow (perm)	3433	3252			4396	1457	1579	3047		1687		2707
Peak-hour factor, PHF	0.87	0.87	0.87	0.89	0.89	0.89	0.89	0.89	0.89	0.82	0.82	0.82
Adj. Flow (vph)	423	1016	0	0	970	173	536	598	471	241	0	844
RTOR Reduction (vph)	0	0	0	0	0	128	0	47	0	0	0	72
Lane Group Flow (vph)	423	1016	0	0	970	45	482	1076	0	241	0	772
Confl. Peds. (#/hr)						11			7			
Heavy Vehicles (%)	2%	11%	0%	0%	18%	8%	4%	4%	7%	7%	0%	5%
Turn Type	Prot	NA			NA	Perm	Split	NA		Prot		pm+ov
Protected Phases	5	2			6		8	8		7		5
Permitted Phases						6						7
Actuated Green, G (s)	15.0	49.9			31.2	31.2	36.8	36.8		18.4		33.4
Effective Green, g (s)	15.0	49.9			31.2	31.2	36.8	36.8		18.4		33.4
Actuated g/C Ratio	0.12	0.42			0.26	0.26	0.31	0.31		0.15		0.28
Clearance Time (s)	3.7	5.4			5.4	5.4	5.1	5.1		4.4		3.7
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	429	1352			1142	378	484	934		258		753
v/s Ratio Prot	0.12	0.31			c0.22		0.31	c0.35		0.14		c0.13
v/s Ratio Perm						0.03						0.16
v/c Ratio	0.99	0.75			0.85	0.12	1.00	1.15		0.93		1.03
Uniform Delay, d1	52.4	29.8			42.2	33.9	41.5	41.6		50.2		43.3
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00		1.00
Incremental Delay, d2	39.4	3.9			8.0	0.6	39.6	80.7		38.3		39.3
Delay (s)	91.8	33.7			50.1	34.5	81.1	122.3		88.5		82.6
Level of Service	F	C			D	C	F	F		F		F
Approach Delay (s)		50.8			47.8			109.9			83.9	
Approach LOS		D			D			F			F	

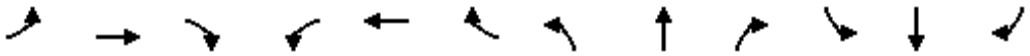
Intersection Summary			
HCM 2000 Control Delay	75.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	241	13	149	42	16	18	301	883	16	17	2090	200
Future Volume (vph)	241	13	149	42	16	18	301	883	16	17	2090	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	4.2		4.2		4.7	4.9		3.7	5.9	
Lane Util. Factor		1.00	1.00		1.00		0.97	0.91		1.00	0.91	
Frpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		0.99	1.00		1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.97		1.00	1.00		1.00	0.99	
Flt Protected		0.95	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1707	1442		1782		3367	5020		1703	4968	
Flt Permitted		0.65	1.00		0.29		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1164	1442		528		3367	5020		1703	4968	
Peak-hour factor, PHF	0.88	0.88	0.88	0.66	0.66	0.66	0.90	0.90	0.90	0.88	0.88	0.88
Adj. Flow (vph)	274	15	169	64	24	27	334	981	18	19	2375	227
RTOR Reduction (vph)	0	0	139	0	8	0	0	1	0	0	11	0
Lane Group Flow (vph)	0	289	30	0	107	0	334	998	0	19	2591	0
Confl. Peds. (#/hr)	9					9						12
Confl. Bikes (#/hr)												3
Heavy Vehicles (%)	3%	54%	12%	0%	0%	0%	4%	3%	6%	6%	3%	1%
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4								
Actuated Green, G (s)		17.0	17.0		17.0		12.6	62.2		4.7	52.3	
Effective Green, g (s)		17.0	17.0		17.0		12.6	62.2		4.7	52.3	
Actuated g/C Ratio		0.18	0.18		0.18		0.13	0.64		0.05	0.54	
Clearance Time (s)		4.2	4.2		4.2		4.7	4.9		3.7	5.9	
Vehicle Extension (s)		0.2	0.2		0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)		204	253		92		438	3228		82	2686	
v/s Ratio Prot							c0.10	0.20		0.01	c0.52	
v/s Ratio Perm		c0.25	0.02		0.20							
v/c Ratio		1.42	0.12		1.16		0.76	0.31		0.23	0.96	
Uniform Delay, d1		39.9	33.5		39.9		40.6	7.7		44.3	21.3	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		213.8	0.1		143.4		6.9	0.0		0.5	10.3	
Delay (s)		253.7	33.6		183.3		47.5	7.7		44.8	31.6	
Level of Service		F	C		F		D	A		D	C	
Approach Delay (s)		172.5			183.3			17.7			31.7	
Approach LOS		F			F			B			C	

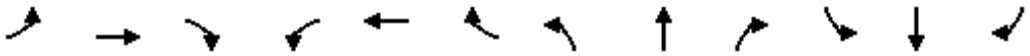
Intersection Summary			
HCM 2000 Control Delay	45.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	96.7	Sum of lost time (s)	14.8
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	665	11	3	1171	10	0	0	2	6	0	6
Future Volume (Veh/h)	18	665	11	3	1171	10	0	0	2	6	0	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.86	0.86	0.86	0.50	0.50	0.50	0.63	0.63	0.63
Hourly flow rate (vph)	20	739	12	3	1362	12	0	0	4	10	0	10
Pedestrians								8				
Lane Width (ft)								12.0				
Walking Speed (ft/s)								3.5				
Percent Blockage								1				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1374			759			2177	2173	753	2163	2173	1368
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1374			759			2177	2173	753	2163	2173	1368
tC, single (s)	4.5			4.1			7.1	6.5	6.2	7.4	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.5			2.2			3.5	4.0	3.3	3.8	4.0	3.3
p0 queue free %	95			100			100	100	99	62	100	94
cM capacity (veh/h)	400			855			30	44	410	26	44	181

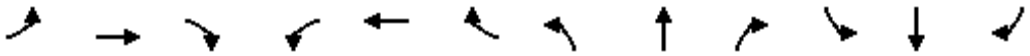
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	771	1377	4	20
Volume Left	20	3	0	10
Volume Right	12	12	4	10
cSH	400	855	410	46
Volume to Capacity	0.05	0.00	0.01	0.44
Queue Length 95th (ft)	4	0	1	39
Control Delay (s)	1.6	0.2	13.9	134.4
Lane LOS	A	A	B	F
Approach Delay (s)	1.6	0.2	13.9	134.4
Approach LOS			B	F

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		



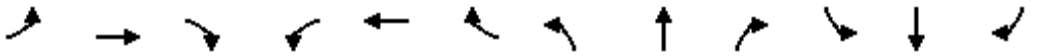
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	327	1196	172	132	798	132	439	595	327	95	146	131
Future Volume (vph)	327	1196	172	132	798	132	439	595	327	95	146	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	4.5	6.0		5.5	5.5	5.5	5.5	5.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		0.91	0.91	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.97	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1787	3539	1215	1736	4954		1507	3358	1529	1736	3201	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.99	1.00	0.95	1.00	
Satd. Flow (perm)	1787	3539	1215	1736	4954		1507	3358	1529	1736	3201	
Peak-hour factor, PHF	0.97	0.97	0.97	0.93	0.93	0.93	0.91	0.91	0.91	0.89	0.89	0.89
Adj. Flow (vph)	337	1233	177	142	858	142	482	654	359	107	164	147
RTOR Reduction (vph)	0	0	83	0	18	0	0	0	228	0	132	0
Lane Group Flow (vph)	337	1233	94	142	982	0	366	770	131	107	179	0
Confl. Peds. (#/hr)			1			7			8			2
Confl. Bikes (#/hr)			1						2			1
Heavy Vehicles (%)	1%	2%	31%	4%	2%	3%	9%	1%	3%	4%	3%	5%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases			2						4			
Actuated Green, G (s)	18.5	41.0	41.0	11.5	34.0		42.3	42.3	42.3	13.7	13.7	
Effective Green, g (s)	18.5	41.0	41.0	11.5	34.0		42.3	42.3	42.3	13.7	13.7	
Actuated g/C Ratio	0.14	0.32	0.32	0.09	0.26		0.33	0.33	0.33	0.11	0.11	
Clearance Time (s)	4.5	6.0	6.0	4.5	6.0		5.5	5.5	5.5	5.5	5.5	
Vehicle Extension (s)	3.0	6.0	6.0	3.0	3.0		8.0	8.0	8.0	3.0	3.0	
Lane Grp Cap (vph)	254	1116	383	153	1295		490	1092	497	182	337	
v/s Ratio Prot	c0.19	c0.35		0.08	0.20		c0.24	0.23		c0.06	0.06	
v/s Ratio Perm			0.08						0.09			
v/c Ratio	1.33	1.10	0.25	0.93	0.76		0.75	0.71	0.26	0.59	0.53	
Uniform Delay, d1	55.8	44.5	33.0	58.8	44.2		39.1	38.4	32.4	55.5	55.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.15	1.14	3.31	1.00	1.00	
Incremental Delay, d2	171.7	60.4	1.5	51.2	4.2		9.3	3.6	1.2	4.8	1.6	
Delay (s)	227.4	104.9	34.6	110.1	48.4		54.2	47.4	108.2	60.2	56.7	
Level of Service	F	F	C	F	D		D	D	F	E	E	
Approach Delay (s)		121.4			56.1			63.6			57.6	
Approach LOS		F			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	82.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	1	26	0	156	0	1181	13	34	399	1
Future Volume (vph)	0	0	1	26	0	156	0	1181	13	34	399	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			5.0	5.0		5.0			5.0	
Lane Util. Factor		1.00			1.00	1.00		0.91			0.95	
Frpb, ped/bikes		1.00			1.00	0.98		1.00			1.00	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.86			1.00	0.85		1.00			1.00	
Flt Protected		1.00			0.95	1.00		1.00			1.00	
Satd. Flow (prot)		1644			1378	1508		4986			3127	
Flt Permitted		1.00			0.95	1.00		1.00			1.00	
Satd. Flow (perm)		1644			1378	1508		4986			3127	
Peak-hour factor, PHF	0.25	0.25	0.25	0.90	0.90	0.90	0.93	0.93	0.93	0.98	0.98	0.98
Adj. Flow (vph)	0	0	4	29	0	173	0	1270	14	35	407	1
RTOR Reduction (vph)	0	4	0	0	0	162	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	29	11	0	1284	0	0	443	0
Confl. Peds. (#/hr)						4			7			2
Confl. Bikes (#/hr)									12			1
Heavy Vehicles (%)	0%	0%	0%	31%	0%	5%	0%	3%	77%	38%	13%	0%
Turn Type		NA		Split	NA	Perm		NA		Split	NA	
Protected Phases	1	1		2	2			4		3	3	
Permitted Phases						2	4					
Actuated Green, G (s)		1.2			8.5	8.5		75.2			26.1	
Effective Green, g (s)		1.2			8.5	8.5		75.2			26.1	
Actuated g/C Ratio		0.01			0.07	0.07		0.58			0.20	
Clearance Time (s)		4.0			5.0	5.0		5.0			5.0	
Vehicle Extension (s)		2.0			2.0	2.0		6.0			6.0	
Lane Grp Cap (vph)		15			90	98		2884			627	
v/s Ratio Prot		c0.00			c0.02			c0.26			c0.14	
v/s Ratio Perm						0.01						
v/c Ratio		0.00			0.32	0.12		0.45			0.71	
Uniform Delay, d1		63.8			58.0	57.2		15.6			48.4	
Progression Factor		1.00			1.00	1.00		1.00			1.10	
Incremental Delay, d2		0.0			0.8	0.2		0.5			4.5	
Delay (s)		63.8			58.8	57.4		16.1			57.9	
Level of Service		E			E	E		B			E	
Approach Delay (s)		63.8			57.6			16.1			57.9	
Approach LOS		E			E			B			E	

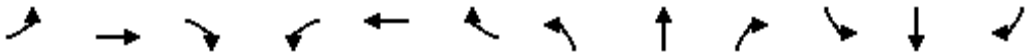
Intersection Summary			
HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	627	634	0	0	801	320	180	623	158	138	0	644
Future Volume (vph)	627	634	0	0	801	320	180	623	158	138	0	644
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	5.4			5.4	5.4	5.1	5.1		4.4		3.7
Lane Util. Factor	0.97	0.95			0.91	1.00	0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			1.00	0.97	1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00		1.00		1.00
Frt	1.00	1.00			1.00	0.85	1.00	0.97		1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95		1.00
Satd. Flow (prot)	3433	3406			4848	1514	1579	3089		1736		2787
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00		0.95		1.00
Satd. Flow (perm)	3433	3406			4848	1514	1579	3089		1736		2787
Peak-hour factor, PHF	0.96	0.96	0.96	0.97	0.97	0.97	0.96	0.96	0.96	0.94	0.94	0.94
Adj. Flow (vph)	653	660	0	0	826	330	188	649	165	147	0	685
RTOR Reduction (vph)	0	0	0	0	0	195	0	16	0	0	0	292
Lane Group Flow (vph)	653	660	0	0	826	135	169	817	0	147	0	393
Confl. Peds. (#/hr)						10			5			
Heavy Vehicles (%)	2%	6%	0%	0%	7%	4%	4%	6%	17%	4%	0%	2%
Turn Type	Prot	NA			NA	Perm	Split	NA		Prot		pm+ov
Protected Phases	5	2			6		8	8		7		5
Permitted Phases						6						7
Actuated Green, G (s)	26.6	62.5			32.2	32.2	37.4	37.4		15.2		41.8
Effective Green, g (s)	26.6	62.5			32.2	32.2	37.4	37.4		15.2		41.8
Actuated g/C Ratio	0.20	0.48			0.25	0.25	0.29	0.29		0.12		0.32
Clearance Time (s)	3.7	5.4			5.4	5.4	5.1	5.1		4.4		3.7
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	702	1637			1200	375	454	888		202		896
v/s Ratio Prot	c0.19	0.19			c0.17		0.11	c0.26		c0.08		0.09
v/s Ratio Perm						0.09						0.05
v/c Ratio	0.93	0.40			0.69	0.36	0.37	0.92		0.73		0.44
Uniform Delay, d1	50.8	21.7			44.3	40.4	36.9	44.9		55.4		34.8
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00		1.00
Incremental Delay, d2	18.9	0.7			3.2	2.7	0.5	14.5		12.3		0.3
Delay (s)	69.7	22.5			47.6	43.1	37.5	59.4		67.7		35.2
Level of Service	E	C			D	D	D	E		E		D
Approach Delay (s)		46.0			46.3			55.7			40.9	
Approach LOS		D			D			E			D	

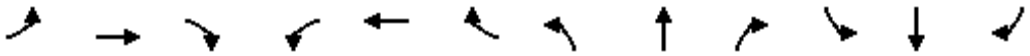
Intersection Summary			
HCM 2000 Control Delay	47.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	279	24	231	28	19	11	232	1873	36	32	1090	155
Future Volume (vph)	279	24	231	28	19	11	232	1873	36	32	1090	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	4.2		4.2		4.7	4.9		3.7	5.9	
Lane Util. Factor		1.00	1.00		1.00		0.97	0.91		1.00	0.91	
Frpb, ped/bikes		1.00	1.00		0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		0.99	1.00		1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.97		1.00	1.00		1.00	0.98	
Flt Protected		0.96	1.00		0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1792	1615		1796		3400	5120		1805	5020	
Flt Permitted		0.73	1.00		0.34		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1371	1615		632		3400	5120		1805	5020	
Peak-hour factor, PHF	0.82	0.82	0.82	0.81	0.81	0.81	0.90	0.90	0.90	0.94	0.94	0.94
Adj. Flow (vph)	340	29	282	35	23	14	258	2081	40	34	1160	165
RTOR Reduction (vph)	0	0	215	0	6	0	0	1	0	0	18	0
Lane Group Flow (vph)	0	369	67	0	66	0	258	2120	0	34	1307	0
Confl. Peds. (#/hr)	21					21			2			23
Confl. Bikes (#/hr)									2			2
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	1%	0%	0%	1%	1%
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4								
Actuated Green, G (s)		17.1	17.1		17.1		11.4	50.4		6.7	43.7	
Effective Green, g (s)		17.1	17.1		17.1		11.4	50.4		6.7	43.7	
Actuated g/C Ratio		0.20	0.20		0.20		0.13	0.58		0.08	0.50	
Clearance Time (s)		4.2	4.2		4.2		4.7	4.9		3.7	5.9	
Vehicle Extension (s)		0.2	0.2		0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)		269	317		124		445	2966		139	2521	
v/s Ratio Prot							c0.08	c0.41		0.02	0.26	
v/s Ratio Perm		c0.27	0.04		0.10							
v/c Ratio		1.37	0.21		0.53		0.58	0.71		0.24	0.52	
Uniform Delay, d1		35.0	29.3		31.3		35.5	13.1		37.8	14.6	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		189.1	0.1		1.9		1.1	0.7		0.3	0.1	
Delay (s)		224.1	29.4		33.2		36.7	13.8		38.1	14.6	
Level of Service		F	C		C		D	B		D	B	
Approach Delay (s)		139.8			33.2			16.3			15.2	
Approach LOS		F			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	34.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	14.8
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	863	0	0	674	2	3	0	2	8	0	12
Future Volume (Veh/h)	1	863	0	0	674	2	3	0	2	8	0	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.88	0.88	0.88	0.31	0.31	0.31	0.56	0.56	0.56
Hourly flow rate (vph)	1	908	0	0	766	2	10	0	6	14	0	21
Pedestrians								7				
Lane Width (ft)								12.0				
Walking Speed (ft/s)								3.5				
Percent Blockage								1				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	768			915			1705	1685	915	1683	1684	767
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	768			915			1705	1685	915	1683	1684	767
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			85	100	98	81	100	95
cM capacity (veh/h)	855			748			68	94	331	74	94	405

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	909	768	16	35
Volume Left	1	0	10	14
Volume Right	0	2	6	21
cSH	855	748	97	145
Volume to Capacity	0.00	0.00	0.16	0.24
Queue Length 95th (ft)	0	0	14	22
Control Delay (s)	0.0	0.0	49.2	37.6
Lane LOS	A		E	E
Approach Delay (s)	0.0	0.0	49.2	37.6
Approach LOS			E	E

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	56.2%	ICU Level of Service	B	
Analysis Period (min)	15			